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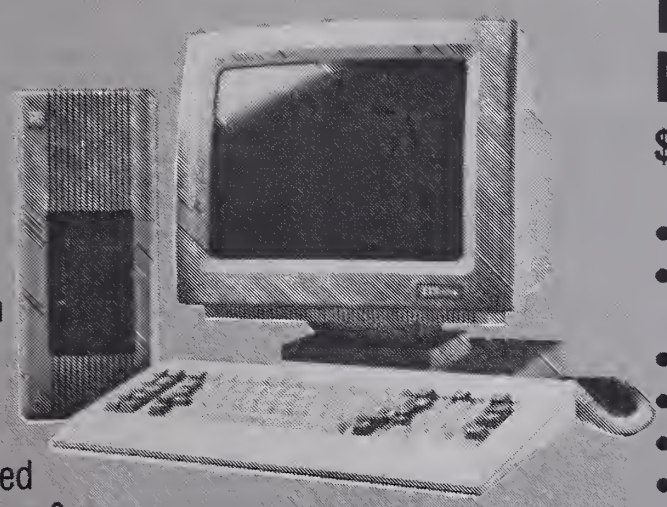

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MICROTIMES

COVER AND CONTENTS PHOTO: PAT JOHNSON STUDIOS

Brøderbund's Doug and Gary Carlston, practicing their own version of the domino theory

COVER STORY

32 Brøderbund:

Next Stop World Domination?

By Mary Eisenhart

Solidly entrenched in the US, making steady gains in the global market, Brøderbund Software's founders explain their formula for success: they publish what they like.

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44 Court Reporting In The Computer Age

By James Evans

Technology has produced a fast, efficient alternative to traditional, slow transcription of court records.

48 You Can Build Your Own PC-XT

By Aubrey Pilgrim

The author, who describes himself as "a complete klutz," tells how he built his own XT compatible from components, got a powerful computer configured the way he wanted it, and saved $3000 in the process.

57 Overview Of Preschool Computing

By Ute Elisabeth Van Nuys

With the right amount of parental encouragement and support, a computer can be a toddler's best friend. A look at some good preschool programs.

62 Advanced Credit Card Technology Ushers In The Cashless Society

By Jack Epstein

Two different technologies are addressing the problem of credit card fraud.

68 Dance On Microcomputers

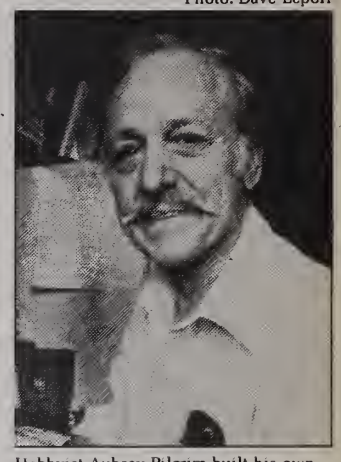
By Tom Ulrich

A Manhattan Beach man has come up with a way to preserve dance heritage: on microcomputers.

Photo: Ben Janken

Ken Combs, a court reporter in San Francisco, demonstrates the CAT computerized transcription system for court records on page 44

Photo: Dave Lepori



Hobbyist Aubrey Pilgrim built his own PC-XT compatible

COLUMNS

70 Commodore

By Matthew Leeds

A look at some new products, including the amazing Amiga Eye.

72 Macintosh

By Barbara Leone

There's no such thing as the "best" spreadsheet. Barbara Leone stresses the importance of buying the right product for your needs.

74 Telecommunications

By Brock N. Meeks

A bill pending in th U.S. Senate is a threat to electronic privacy.

76 Small Business And Computers

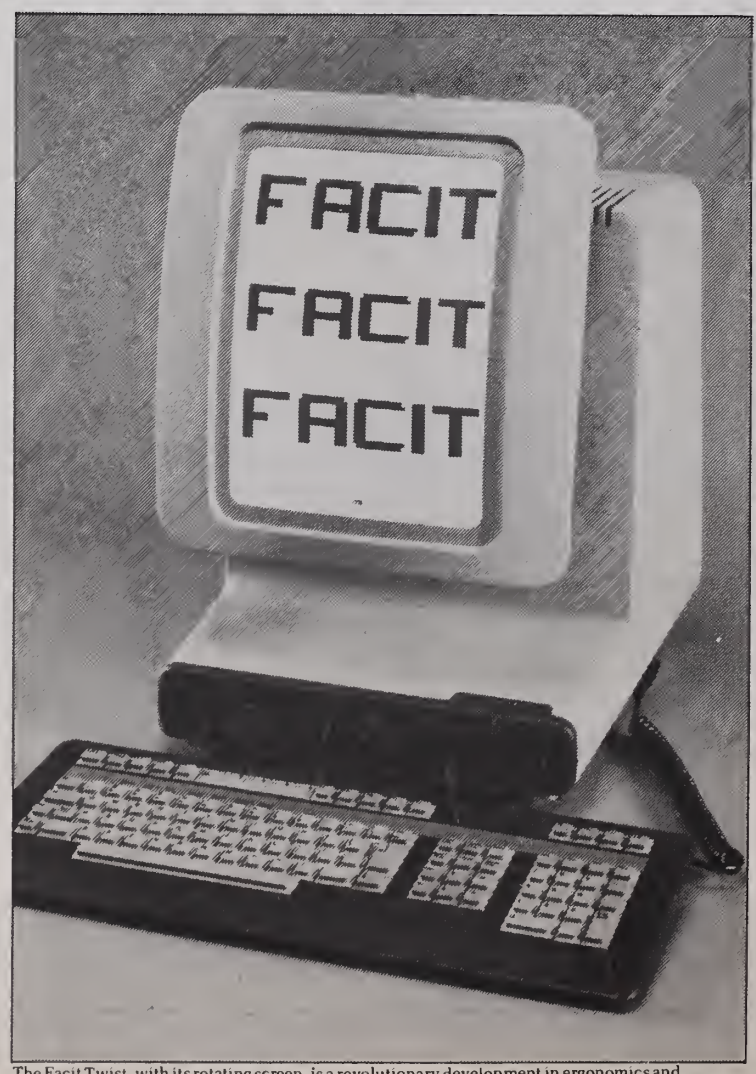
By L.K. Engelhart

L.K. Engelhart propounds the heretical notion that the business computer market isn't saturated, just confused.

78 CP/M

By Robert D. Athey, Jr.

How templates can be used to simplify your work in ways you might not have thought of.



The Facit Twist, with its rotating screen, is a revolutionary development in ergonomics and ease of use. See Buyers Guide

DEPARTMENTS

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Don Hamilton comments on the eroding influence of Data Processing departments in business computing.

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Photo courtesy of Sony

Brøderbund's Japanese division sponsored a Lode Runner competition, played by 50 young finalists on an 80' x 150' screen. It was the largest video game ever played. See Newsreels

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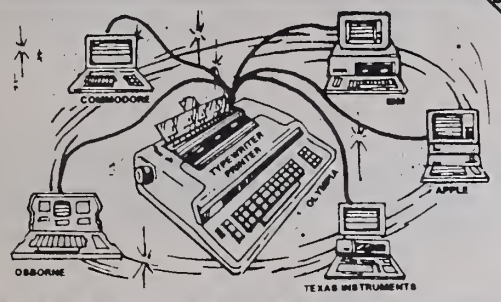

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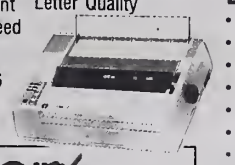

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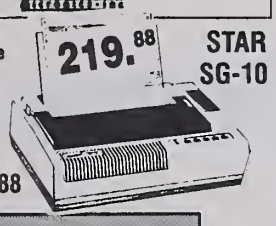

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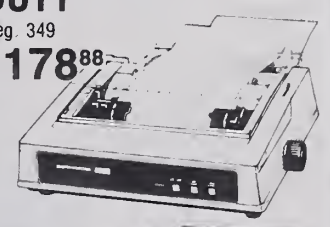

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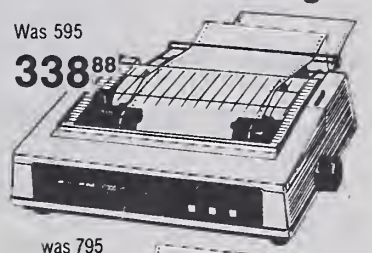

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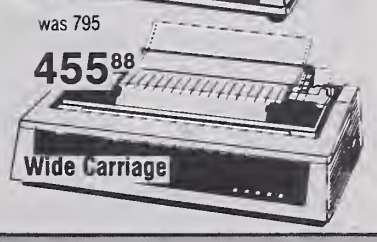

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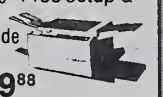

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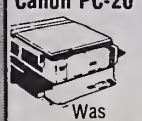

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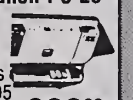

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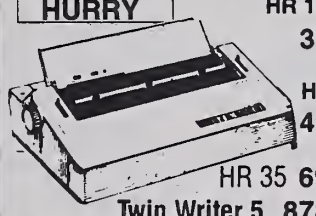

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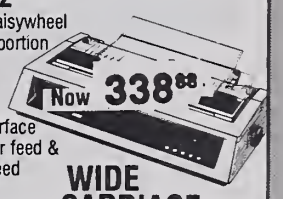

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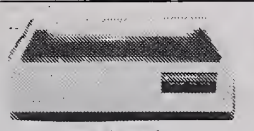

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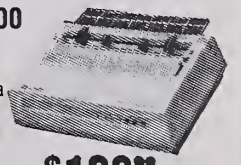

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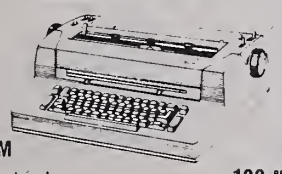

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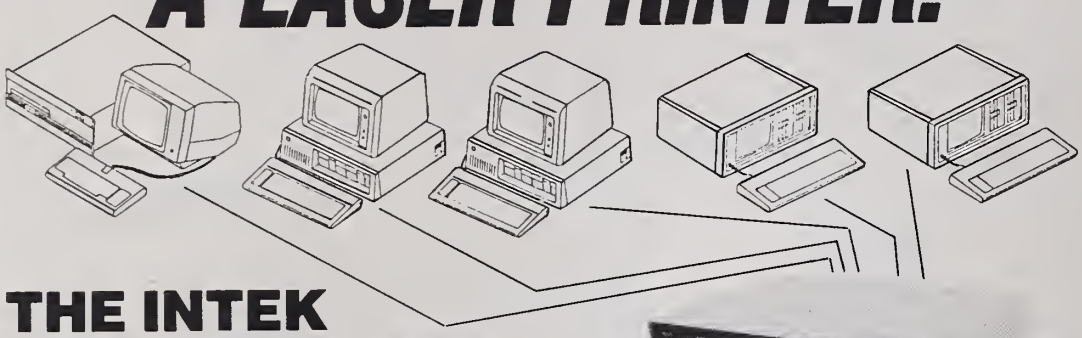

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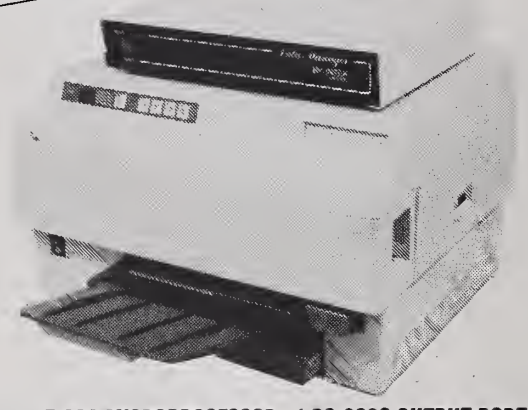

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LETTERS

Government: The Biggest Hacker Of Them All?

Thank you for the even-handed coverage of Assemblywoman Moore's ACA 9 in James Evans' article on information technology and the law—but did you have to feature it under the heading, "Are You Safe From Hackers?" (July 1985).

The history of privacy-right abuses includes far more instances of state-sanctioned intrusion than could ever be contemplated by the well-publicized gaggle of teenage vandals promoted by the popular press. Armed with the most powerful and sophisticated technology, agents of the state, whatever their motives, are now able to monitor ongoing computer communications, search deep into public messaging systems, and "plant" undercover types among computer-linked communities. It is this current reality, and not the fantasy of teenage antics, that rightly causes potential users of commercial information systems to reject their use.

ACA 9 is a constitutional amendment, rather than a mere statute, for a purpose. It is a prohibition on "hacking" by the potentially worst abuser of all, the government. It deserves more than a juxtaposition with the excesses of amateur computerists, who are far less capable of threatening freedom of expression and a person's "information privacy" than a misguided arm of the law.

ACA 9 should move through the Legislature either this summer or when the Legislature reconvenes in December. Then it will go on the general-election ballot. The people will decisively decide, I believe, that ACA 9 addresses a more profound obstacle to an information society than indicated by the title of your article.

Bob Jacobson
Principal Consultant
Assembly Utilities and Commerce Committee
State Capitol, Room 2117

More Games Please

I've had an Apple IIc for about a year now. I bought it mostly for playing games, but I've long since mastered the ones I have. Since I don't have that much money to buy games on a trial and error basis, I rely on magazines like yours for recommendations. I'd like to see more game coverage generally, especially in the fantasy-role playing area.

Since I also have to use the computer to work sometimes, I'd also like to see more coverage of Apple-related products in general.

Jeff Carver
Downey

FanMailWare

Thanks so much for John Barry's and Michael Wiesenberg's "Ware and Tare." (June issue) It made my day, and it also made a point. We're getting so good at coining jargon phrases that half the time we don't know what we're saying. Thanks for striking a blow for comprehension.

Jeannette (ReaderWare) Henderson
San Mateo

Letters are heartily encouraged. Please send them to Letters, MicroTimes, 5951 Canning St., Oakland, CA 94609. Please sign your real name and include the town where you live.

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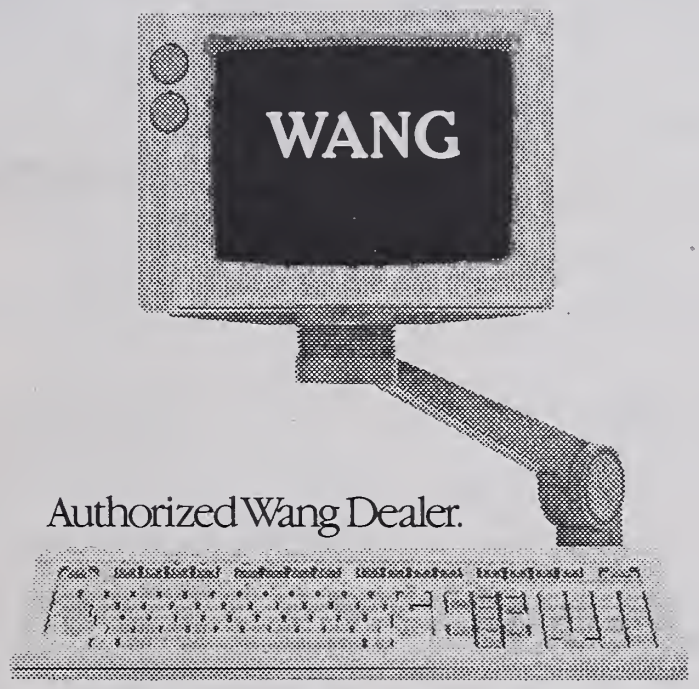

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dBASE II and III work really well for your personal data bases and for programs that you write for yourself. But what happens when you use dBASE to write programs for other people? dBASE is a slow interpreter so your clients won't be happy with the speed. Everyone running your programs will need an expensive copy of dBASE, or a $195 license for Ashton-Tate's Run-Time or dBRUN. Your clients will have hassles with copy protection. Your clients can snoop and change your source code.

The *WordTech* compilers for II & III are replacments for dBASE that solve these problems. If you like the dBASE languages, but don't like the Ashton-Tate products, you should try the WordTech compilers instead. They take an entire application written in a dBASE language, including all screen, report, and label formats, and turn the whole thing into a machine-language EXE file that runs so much faster. No more Ashton-Tate products. No more license fees. No more worries about your source code. And your programs will run on many more machines because the compilers support all DOS machines like DEC, Wang, HP, and Sanyo, as well as IBM.

Compiling dBASE Is Easy

Everything is automatic. The *WordTech* compilers are not copy-protected, so you install them by simply copying the files to your hard disk. Then write four BAT files that set up the compiler and link-editor for your machine.

CHECK is a high-speed syntax check of your entire application. The compiler is much more finicky than dBASE. It checks every word in every line for proper syntax so you won't have errors lurking in places you haven't tested yet.

COMPALL turns every program, procedure, and format into a separate text file of high-speed machine language.

LINKALL finishes the job by link-editing, or combining, all of the little text files and the WordTech library into an EXE file (minimum size 96K) and overlays.

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Even macros are supported. When the compiler sees an "&", it switches out of machine language and calls a "Miniature Lexical Analyzer" to figure out the substitution. The MLA can handle nested macros, macros as psuedo-arrays, macros as search strings, macros for colors, macros for filenames, etc.

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Industrial Reorganization And The Decline Of "DP"

By Don Hamilton

The standard company organization has a data processing tree, an organization formed in response to the introduction of the mainframe computer into industry. The DP organization met the needs of the '60s and '70s and continues to provide the support needed for the use of large computer systems.

The '80s have seen the beginning of a big change. Computers are getting smaller and more people are able to run them without the full-time help of computer specialists.

The DP group wants standardization so that they can support the complete needs of users, as they have done traditionally. Each of the individual organizations wants its particular needs addressed. What that means is that the standard does not often meet all of the individual's needs. No DP department is large enough to have complete knowledge of all systems.

Most companies are experimenting with ad hoc organizations and study groups designed to shoehorn everyone into the standard or to expand the standard to include all the needs. The end result can be imagined: confusion, confrontation and no meaningful solutions.

The managers find ways to meet their needs; the committees, working groups, and study groups continue to argue. Slowly but surely the computers are arriving even in the most sloth-like organizations. Because of the immediate needs that are not being met while the decision process continues, the new computers have very little to do with standardization.

Eventually each company comes or will come to the same conclusion: the structure of the DP department must change. The new DP departments, like the new computers, will be small and spread throughout the company, each one different to meet each unit's needs.

It is likely the system the user purchased is not one that was blessed as part of the standard. Due to the non-standard nature of the equipment, the DP person probably is not as familiar as would be required to solve the problem immediately without some study. He or she may also imagine that this person is not smart enough to be operating a computer, and that therefore this is the perfect opportunity to rub a face in the "need for standardization" argument. The pat answer to a call for help is, "Well, I don't know, but we will study the problem. If you had standard software and hardware we could help."

It's true that no one can know or be vaguely familiar with all the hardware and software that might be purchased within a large company. That is precisely why each organization must have its own small unit that understands what the computer needs are for the entire organization, but are also familiar with the individual needs and job requirements of the people within that organization.

The "DP" department is not going to disappear. It will still service the large mainframe computers, host those that connect to the mainframe, and maintain some of the larger networking systems. However, the likely scenario is a set of smaller "communication service" departments that will be added to each organization almost regardless of its size. These units in total throughout the company will be larger than the "DP department.

These units are being formed right now (without official sanction) in most larger companies to meet current needs. They are quite often attached ad hoc to almost any manager who is in need with no real title except "staff" or just "the computer person." It won't be long before they will have a box of their own on the organization chart. □

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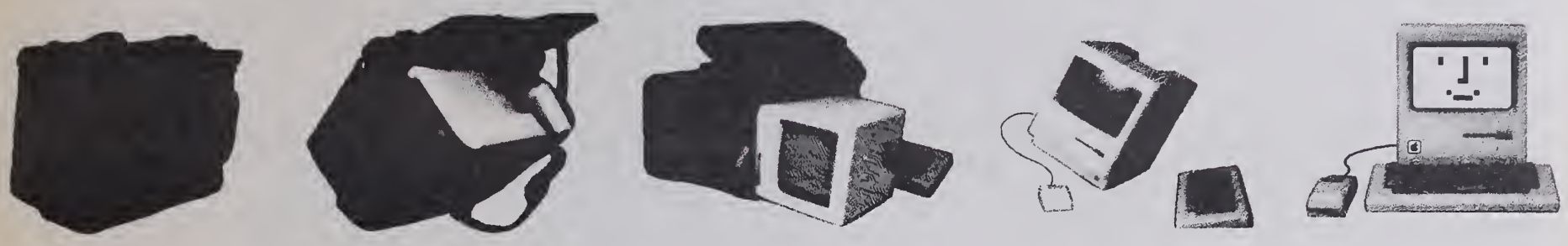

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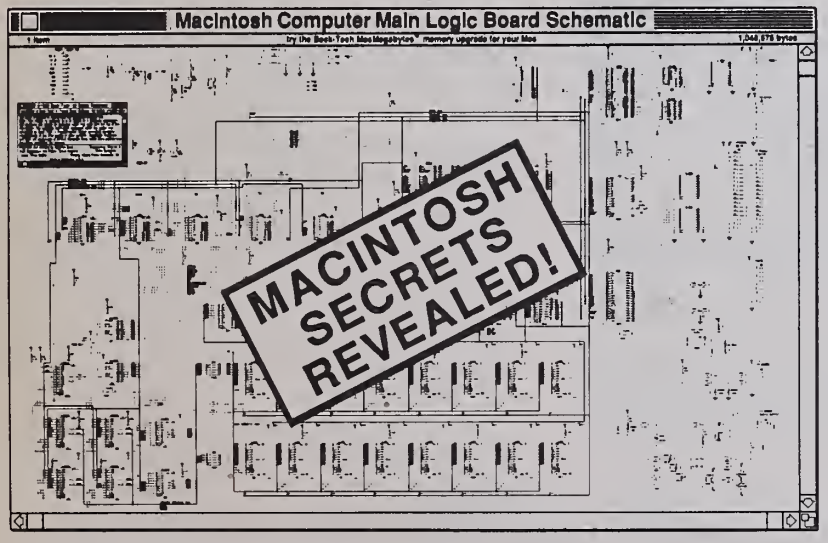

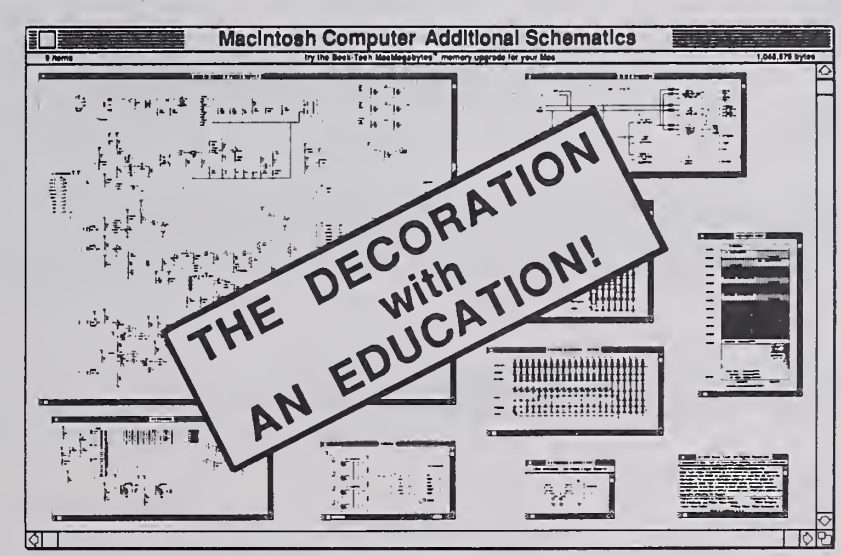

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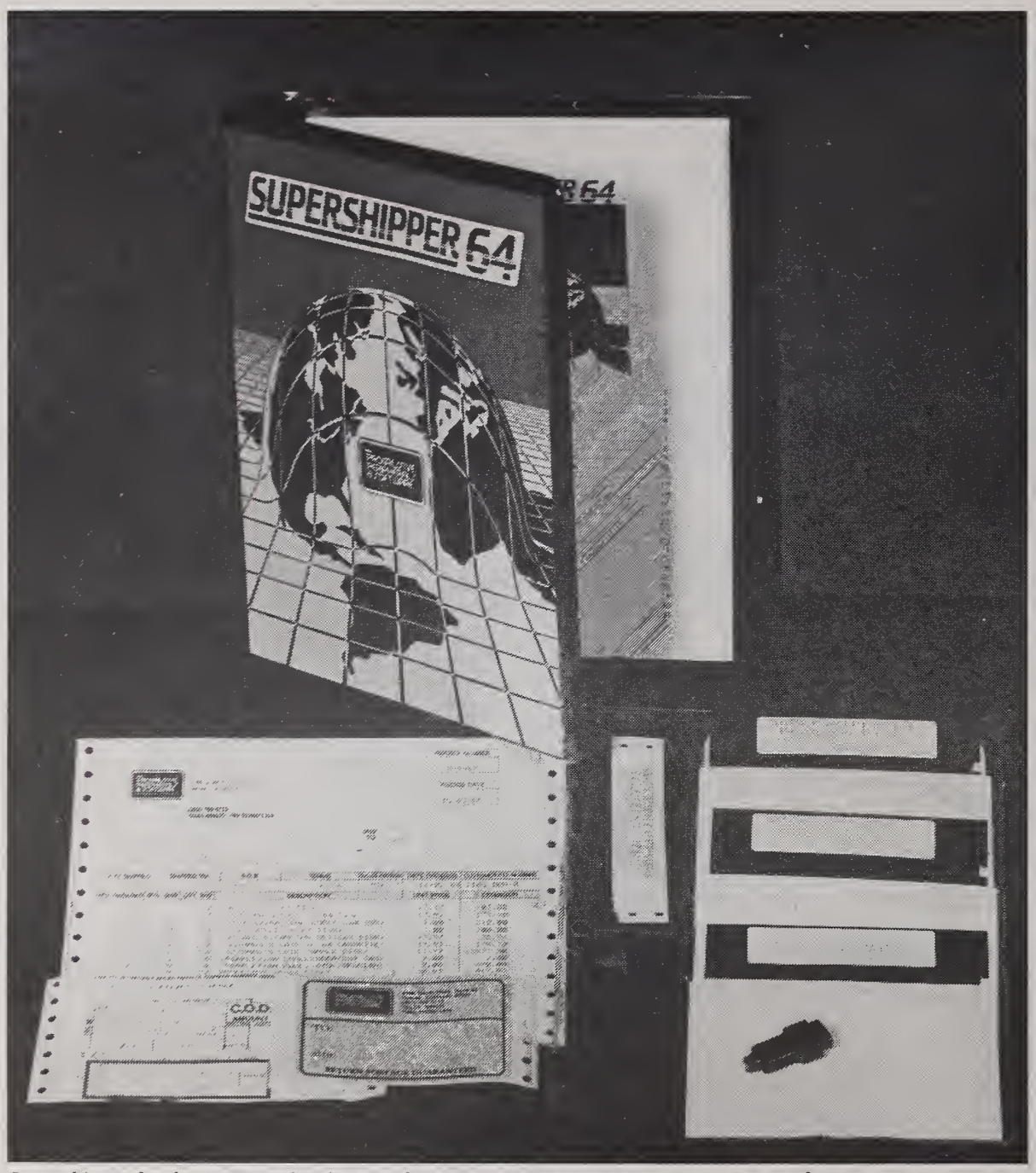

Supershipper for the C-64 may be all the ordering-invoicing software your company needs.

ACCOUNTING

SuperShipper 64

For: Commodore 64
Suggested retail: $99.95
Reviewed by: Matthew Leeds

Steve Spring runs Progressive Peripherals & Software. The company started small, and grew at a tremendous rate. When he needed a computerized invoicing, billing, and shipping system to handle the increased volume, instead of buying a high-end turnkey system, he created one that ran on the computer his company got rich servicing, the Commodore 64. In the process he ended up with a low-cost order invoicing system that any start-up business can afford.

SuperShipper 64 is an amazing program. The first time I saw it up and running at the Commodore Show in February I was struck dumb. There was a single C64 driving three printers and pair of disk drives. Each printer had a different set of forms in it: invoices, COD tags, and mailing labels. My immediate thought was how similar it looked to a hot-rod VW bug. Once I talked to Steve, I began to see the logic of the design, and when I compared the cost of any other comparable system I saw his market.

The system requires a minimum of two disk drives. One drive holds the accounts disk, with a capacity for 800 accounts, and the other drive holds an invoice disk with a capacity of 500 invoices and product information on 200 products. By adding a third drive and placing additional product information on it, you can increase the number of products by 2000. The full hardware potential is five disk drives and four printers, with support for IEEE devices. As you can see, it sounds like a lot of equipment, but for under $2500.00 you end up with a full order processing and tracking system.

The software is not copy protected, and you are encouraged to make backup copies of *everything*—program disks, data disks, etc. To use any of the print functions, you must insert a "key" into the joystick port. This is a fair way to protect software, but, frankly, without documentation this program would be difficult to use. The manual is well laid out, *very* complete, and given the complexity of the program, easy to follow.

It's not possible to cover all of the features that SuperShipper 64 supports. It simply is everything a small to medium size mail order house would need to process, invoice, and ship orders. Pricing, terms, backorders, shipping info, product info, customer info—it's all accounted for. The software is almost idiot-proof. It checks each entry for errors, checks to see if the correct disk is in the drive, and generally helps you along until you've had your first cup of coffee in the morning. Included are utilities for repairing "bombed" disks and data disks damaged during a power outage. This system is thorough.

There are a couple of points I should mention before you rush out and buy SuperShipper 64. This is a very powerful piece of software, and it takes study and effort to learn to use it to its full capacity. PP&S has included a sample accounts and invoice set for you to practice on. Do so.

PP&S does not have a high opinion of the Commodore 1541 disk drive. You may want to consider either the MSD drives or the Commodore IEEE drives. Also, to print out reports (and you will want to), you need a non-Commodore printer. I do not have a high regard for Commodore printers anyway, so this is no great loss. However, to connect more than one printer to the C64 requires some special hardware, available from PP&S.

If you have no experience with Commodore equipment, find a friend that does. There are some unique (odd) quirks to the C64, and it would be best to find out about them secondhand. Don't get me wrong, it's a great system, but like any, it has its own set of good/bad features. As in all cases, buy the software first, read the documentation, then buy the hardware. PP&S can be reached at (303) 825-4144.

PROGRAMMING/COMPILERS

Clipper

Published by: *Nantucket, Inc. of Malibu CA*
Requirements: *IBM PC, or XT or compatible w/256K RAM*
Suggested retail: *$700.00*
Reviewed by: *Laurie Foster*

If you've been using *dBASEIII* to develop application systems and need to speed up execution time, the *Clipper* compiler for *dBASEIII* may be just what you've been waiting for. It works, it's fast, and it's an excellent implementation of an idea whose time came quite a while back. It looks like quality control has done a good job, and *Clipper* can be relied upon—assuming you use it correctly. Future releases promise to deliver an even more exciting and useful product.

The *Clipper* software includes the compiler, which converts your source code to an object code .OBJ file, and the linker, which converts the compiled object code into a machine readable .EXE file. Once compiled and linked, your application can be run on any 256K RAM computer that runs PC/MS DOS Version 2.0 or later. It need not be an IBM PC or clone, and it does not require the *dBASEIII* software to run.

Because dBASEIII is an interpretive language, it provides error checking and translation—line by line—for every line of source code encountered during program execution. If there is a problem, the interpreter displays a message and lets you make on-the-spot corrections. Obviously, this instant feedback can be a great debugging aid during program development. However, the line by line error checking and translation (into machine readable code) takes considerable CPU time and greatly slows the execution time of your application.

A compiler, as contrasted to an interpreter, goes through this same line-by-line error checking and translation process, but it does so only once, when the source code is compiled. The output of error-free translation—your machine-readable .EXE file—is saved to disk and used thereafter to run your application. Running a pre-translated execution file results in *dramatically* faster processing time.

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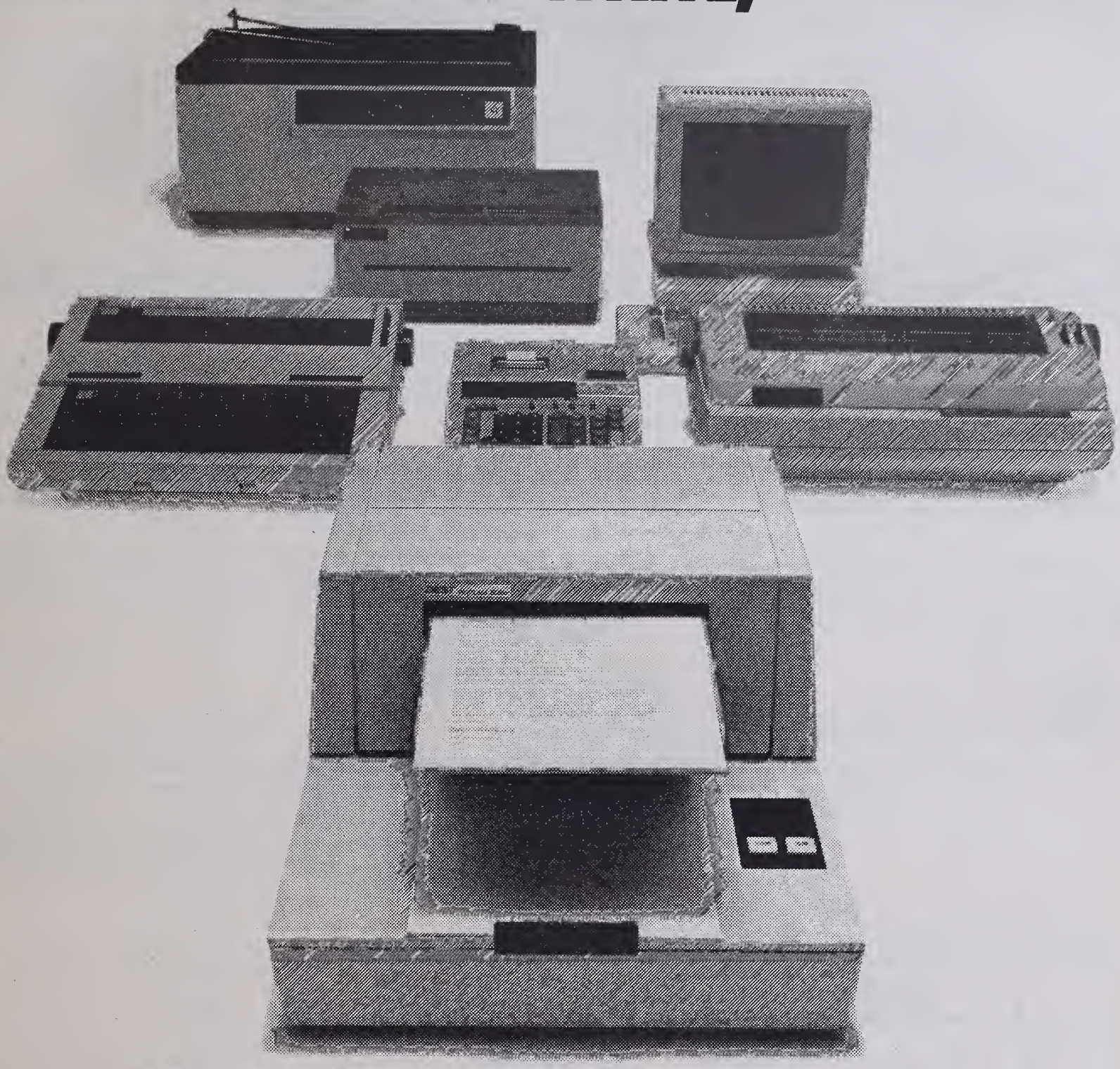

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PROGRAMMING/COMPILERS

Clipper would be easier to use if it weren't for the really poor documentation, which mainly leaves you to figure out procedures by trial and error. Using *Clipper* requires two basic steps. First, you create an object file by telling *Clipper* to compile the program at the top of your calling hierarchy. It will find and compile all subprograms. If no fatal errors occur, *Clipper* produces a file containing object code for your entire set of nested programs.

The second step is to link your object code file into the *Clipper* library of subroutines. This can be done using the linker provided by Nantucket, or using the linker that comes with DOS. Both of these steps were accomplished automatically by the 2-line batch file that comes on the *Clipper* system diskette — although I did have to alter it slightly before it would work smoothly on *dBASEIII* programs in a directory other than the one inhabited by the *Clipper* software itself.

There are several advantages to using a compiler over an interpreter. The primary advantage is a dramatic increase in execution speed (from 2 to 30 times faster). Another good point is source code security. If you are an application systems developer, you can retain exclusive control over your programs simply by distributing only the machine-readable execution file produced by *Clipper*. It is virtually impossible to generate source code from relocatable object code.

The use of a compiler can also result in reduced cost to end-users. Since neither *dBASEIII* nor the *Clipper* compiler is required to run your machine-readable execution file, the end-user is required to pay no costs other than the price you charge for your own application. There is no license fee for running execution files produced by *Clipper*, a rare boon to the developer, since most compilers include run-time licensing fees that substantially boost the cost of your application system.

There are some constraints built into *dBASEIII* that can seriously limit your design freedom if you are building a large & sophisticated application system. *Clipper* provides some extremely powerful language enhancements that could significantly expand your design freedom. Some key enhancements are: 250 open files, 64000 active variables, 1024 fields per record, user defined functions, memo field manipulation, scientific notation, recursive/nested macros, context-sensitive HELP, error-traping, multiple SET RELATIONS for a single file, and various other new functions.

These advantages come with certain disadvantages. Some useful *dBASEIII* commands are not available with the *Clipper* compiler. If you have used these in applications developed with the *dBASEIII* interpreter, you will have to remove them from your source code and find another way to get the job done before compiling your application. Commands unavailable with *Clipper* include: ASSIST, BROWSE, CHANGE, DISPLAY/LIST STRUCTURE, EDIT, INSERT, PEEK(), POKE, SET, and interactive APPEND (APPEND BLANK, REPLACE can be used).

I agree that most of these commands are appropriate only for use with "raw" *dBASEIII*, and do not belong within an application. However, I have a real complaint with the decision not to implement the BROWSE command. I use it judiciously but significantly as an integral part of my user-interface — and will be forced to do some extremely laborious programming to achieve the same functionality without this powerful *dBASEIII* facility. (You can call the *dBASEIII* interpreter within *Clipper*-compiled code, which may provide a cut &

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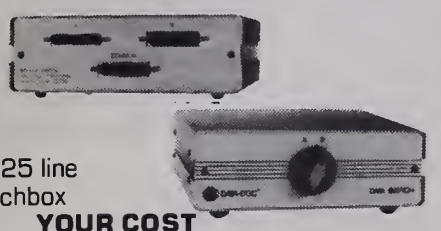

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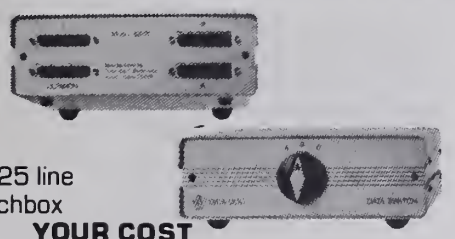

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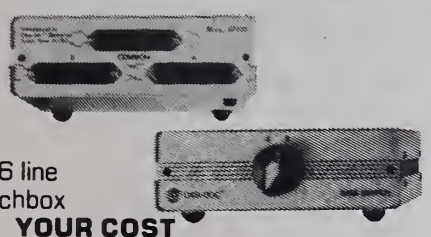

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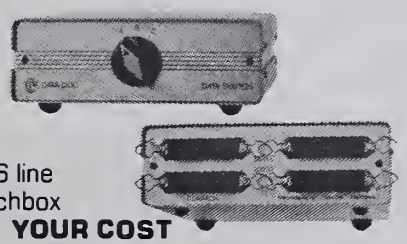

AB36-3
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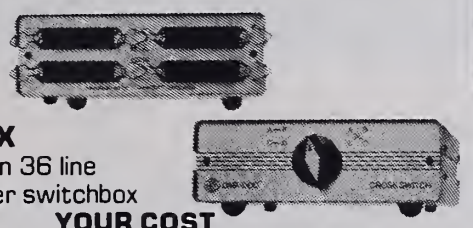

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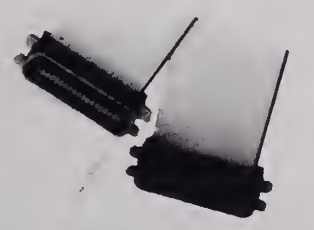

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paste method of grabbing back some of the *dBASEIII* functionality not included or not yet provided by *Clipper*.)

Another language limitation involves the use of macro drive designators (DD & drive:MYPROG). Although this is fine during *Clipper* execution, programs preceded by a macro drive designator cannot be found when *Clipper* tries to follow your calling hierarchy. If you need to use macros for drive designators on called programs, you will have to compile each called module explicitly and separately—and then bind them together with the linker.

For technical reasons, Nantucket was forced to implement a number of commands with slightly different syntax or—in the case of index files—to use different file extensions. Although this will not affect your system design or require laborious detour programming, you should expect some tedious conversion effort before successful compilation.

If you know these differences in language usage before developing your application with the *dBASEIII* interpreter, you will be able—in some cases—to use the language in such a way as to be valid in interpretive as well as compiled mode.

Clipper creates & uses index files that are incompatible with those generated by the *dBASEIII* interpreter. This causes some inconvenience in switching between compiled and interpretive mode. The manual states: "The advantage to this is greater indexing speed and considerably smaller index files." However, I find that *Clipper*'s index files are consistently 10 to 20 percent larger than those generated by *dBASEIII*.

There is a real difference between developing in an interpretive environment and developing in a compiled environment. In my opinion, there's no contest — the interpretive environment is far superior for development. You can experiment with the language — try out small steps and see how they work. You have built-in & powerful debugging features. You can make quick changes to small segments of your source code, and immediately rerun it for instantaneous results. A compiled environment provides no such instantaneous feedback. To test the results of a program modification, you must re-compile and re-link all programs in the calling hierarchy being tested.

This process may be painful to someone (like myself) who has become hooked on the instant gratification provided by an interpretive environment. I am tempted to avoid using the many powerful language extensions available with *Clipper*—for the simple expediency of using the *dBASEIII* interpretive environment during the entire development process. I'd rather wait until no further program changes are necessary before compiling my application.

In some instances, it may be possible to belatedly take advantage of *Clipper* language extensions without sacrificing the benefits of an interpretive environment during program development. For example, I recently had to change an application design because it violated *dBASEIII*'s limitation of having only 15 files open at one time. Although I could have closed some of these files in order to open others, this extraneous opening and closing of files within a single data capture operation slowed performance unbearably. Had I known, at that time, that *Clipper* would be available to remedy the situation once development was complete, I could have kept my original design and used file switching as a temporary stop-

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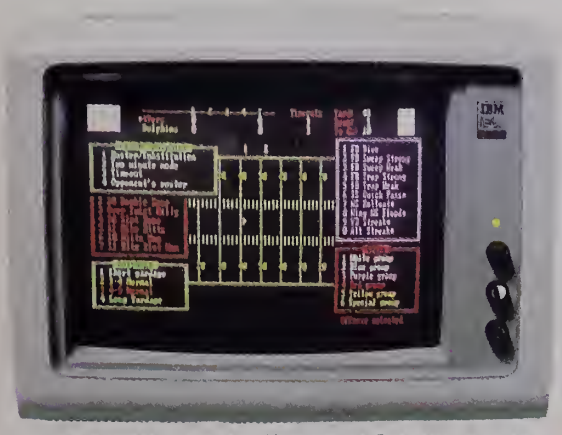

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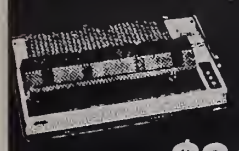

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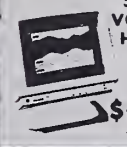

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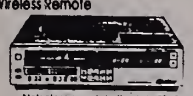

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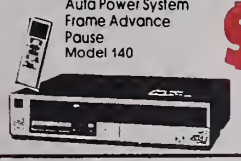

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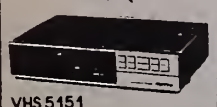

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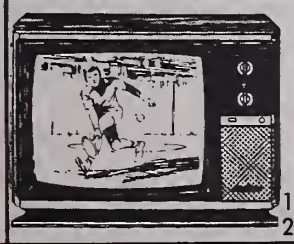

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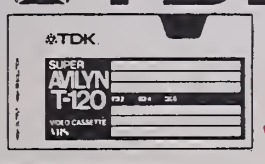

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gap until my application was compiled.

Similar devices may allow one to remain in interpretive mode during development — while using an ultimate application design that assumes availability of certain language extensions provided by *Clipper*. It will certainly take considerable creativity and determination to get the best of both modes (interpretive and compiled); but there is real hope, especially since interpretive *dBASEIII* can run compiled programs, which gives you the option of enhancing and compiling subprograms incrementally, while source code still under development remains in the interpretive mode.

Clipper's speed is really impressive. Screens that took several seconds to paint themselves on my CRT now flash up too fast for me to time them. I'd have to call it instantaneous. Unfortunately, it still takes time for disk access — but that's a mechanical problem no compiler could solve.

Error messages sent to the screen during compilation of your source code are terse, but understandable. These can be routed to a disk file and saved for your review. Error messages sent to the screen during execution provide insufficient information, and the manual offers no help at all.

Some key features of the *Clipper* compiler will not be available until the next release which is scheduled for mid-August 1985. These include: CREATE and MODIFY REPORT/LABEL (*Clipper* utilities that replace *dBASEIII*'s report and label generators), REPORT, LABEL, JOIN, READ SAVE, scientific notation, SET PATH, SORT, TOTAL, UPDATE, and DEBUGGER utility. The next release will be provided free of charge in exchange for the current version.

Clipper costs $700, a fair enough price, particularly considering the lack of any licensing or run-time module fees. Although copy-protected, *Clipper* uses a mechanism that minimizes your inconvenience by permitting installation on hard disks and allowing you to de-install it from one computer so you can re-install it on another. Two hard disk installations and two floppy disk installations can be run simultaneously.

Nantucket provides two sources of technical support for registered users: on-line assistance via The Source, or direct assistance from Nantucket, for an additional charge. Because Nantucket provides neither an 800 support number nor free technical assistance via phone, you may find it worthwhile to get *Clipper* through a value-added reseller that includes technical support with the purchase price.

WORD PROCESSORS

NewWord 2.16

Published by: *Newstar Software Inc.*
For: *CP/M*
Suggested retail: *$100.00*
Reviewed by: *Robert D. Athey Jr.*

Word processing packages come in two varieties, the kind that came with the computer, and the kind you buy because it has some features you don't have and would like to use. *NewWord*, introduced by Newstar Software Inc. in late 1982, was bundled with some computers (the Morrow, for instance) and was offered for sale from software retailers, as well. It is most often compared to *WordStar*, as they both use very similar command schemes. The most frequently cited difference between them is the price — the *NewWord* being several hundred dollars cheaper even initially (at $249, then). The of-

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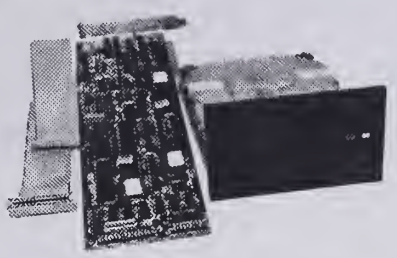

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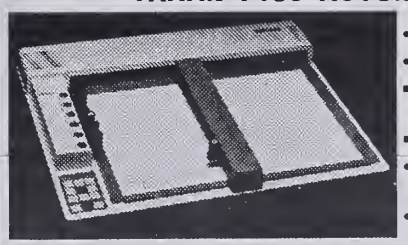

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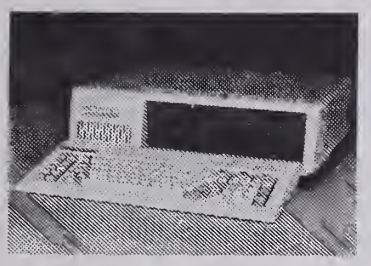

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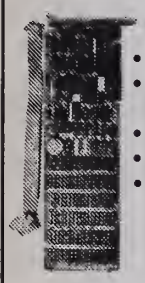

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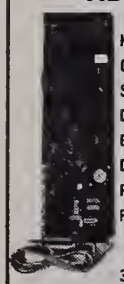

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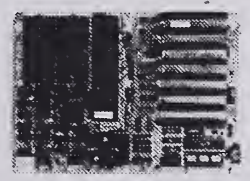

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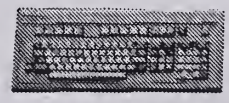

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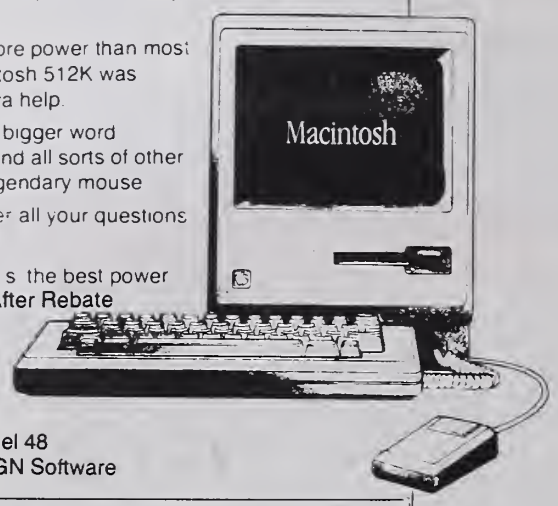

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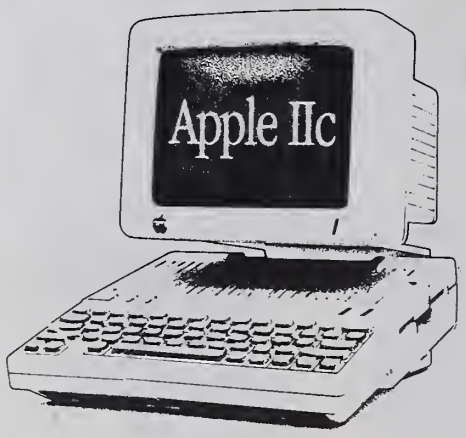

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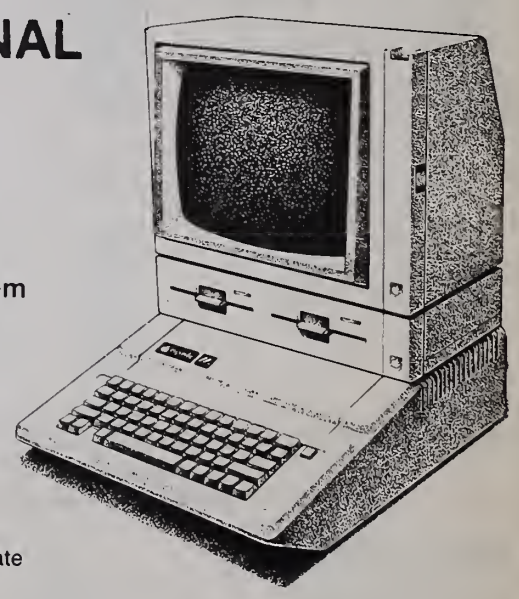

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WORD PROCESSORS

fering price is now more like $100.

The key features of *NewWord* boil down to several classes of "can-do." The first class is types of documentation. The initial menu gives you a choice of document-mode or non-document-mode, which essentially boils down to how the words you process are presented to you. The document-mode is formatted to show you on-screen what your letter, article, or whatever will look like, including margins (top, bottom and sides). The non-document-mode, essentially an ASCII file, gives you almost the same screen appearance, but with no sentence wrapping or bottom margin, and is used for database files or programming in some language. Neither of these points is all that different from the *WordStar*. However, included in the *NewWord* program file is a built-in capability to merge names, addresses, text, or whatever, into a file that you are printing — essentially a built-in *MailMerge*. This is not a separate program, but a built-in feature of *NewWord*. My own experiment with this feature was to knock out ten letters to various elected officials about another frivolous action taken recently by a California bureaucracy, and it was a treat seeing the letters to senators, congressmen and assemblymen just rolling off the printer — zip, zip, zip. It's a simple matter of constructing the address file in a certain format (it works in either document or non-document modes), and constructing the letter in a format that cues the address file as to what goes where. The documentation drolly reminds you this is how you get those letters with your name several times within the text, mispelled each time. I've never tracked through the *MailMerge* feature of *Perfect Writer*, as it looked too difficult/complex.

Another class of operation *NewWord* can do is in the individual writing/editing operations. Key points I find useful are:

1. Deletion by the DELETE key on my Kaypro keyboard, a letter at a time, or by CONTROL character commands that allow you to delete character, work or line. The CONTROL character deletions can be "unerased" or re-deposited in a new place. I used that feature to lay down frequently repeated words or phrases in any document, such as *NewWord* in this one.
2. Realignment of a paragraph electronically after it was set up to the margins and word wrapped, and you spoiled it by going back in and editing. Again, you use a simple CONTROL character, and it's done.
3. The find/replace is also a simple CONTROL character operation.
4. The alternate character set in older Kaypros has Greek letters (useful for mathematics equations) among the myriad of characters. These are difficult to get to without some fancy fiddlesticks in *Perfect Writer*, but you simply use the print CONTROL character in *NewWord* that tells the printer to use an alternate ribbon color. The enclosed tabulation shows the alternate characters and their keyboard equivalents. I have the impression that the Morrow computer can also do this. The later Kaypros have a different alternate character set that is more oriented to graphics, and they do not have the Greek letters.
5. The software is able to chain several files for printing, without overloading memory. It will even chain from one disk to another without the need for a warm boot. This is important to serious writers, and I could have used it for the 135 page (off my printer) chapter I wrote for a technical book last year.

The last class of can-do lies in the menus of operations offered and the help levels they offer for each menu. There are essentially five menus (which you can turn off, when you get skilled in the art). The menus are:

1. Edit (Always showing, when you start);
2. On-screen Format;
3. Saving and Blocking;
4. Print Controls;
5. Quick Menu (a cut down version of Edit).

Each of the four latter titles shows peripherally on the first menu, and is called up by a CONTROL character. Each menu has several levels of help available, which you can select based on your knowledge/experience level. The menus and help explanations are sufficiently lucid to make one forget there's documentation (a paperback book, and a pamphlet for updates).

After all this raving on about all *NewWord* does, you'd think there was nothing I'd see as missing. Ah, but I've better than two years experience with another (albeit complex) software package. I do miss the capability to:

1. Switch two transposed letters or words;
2. Automatically footnote or endnote a text (a feature needed by science writers);
3. Tap a word with a CONTROL character to change it from capitals to lower case, or vice versa; or,
4. Use multiple files in buffers, switching back and forth, copying and moving.

The latter complaint is minor, as there are copying

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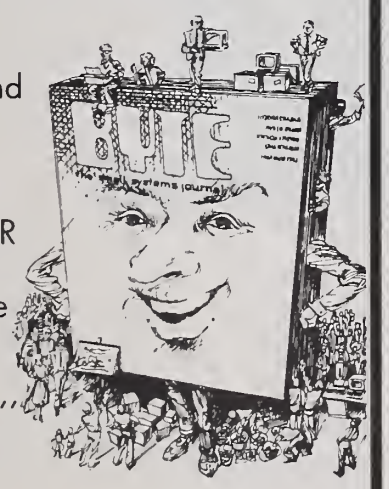

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WORD PROCESSORS

and moving capabilities in *NewWord*. However, the technique with *NewWord* involves depositing the copied block of characters (more than a line from a file) as a separate second file, and then calling that second file for deposition within the text within another third file. It works, so I shouldn't gripe, right?

The *NewWord* operation is simple to learn. The documentation manual comes as a tutorial (which I do not do — just read — because I am impatient enough to want to do my own documents). That tutorial is constructed to give some fun as well as instruction. The documentation has numerous helpful appendices, including an Encyclopedia that defines each kind of character that does some kind of control of the operation. The installation program for *NewWord* has many adjustable parameters, and is set up to recognize both my Kaypro and my Prowriter upon my input. The installation instructions in the manual were painless — not hardware or software jargon (Hooray!). The technical support is practically instantaneous, but recognize that the technical support may (in time) not always be free. The technical support for users who have exhausted the documentation is deemed reasonable by Newstar, but they may get (justifiably) impatient with the calls that suggest the user did not do his homework.

All in all, I heartily recommend this software for the writer of business or correspondence text. It could be handily used by fiction writers, or technical writers that don't do much footnoting. It will certainly help a great deal on the book I plan to do sometime in the next year. All this without even considering the phenomenal price. (*NewWord 2.16*, Newstar Software Inc., 1601 Oak Park Blvd., Pleasant Hill, CA 94523, (415) 932-2278.)

UTILITIES

Enhancements For CP/M 2.2

Published by: *Plu*Perfect Systems*
Price: *$32*
Reviewed by: *Robert D. Athey Jr.*

The Plu*Perfect people got together less than two years ago, after they had taken *Perfect Writer* apart and put it together again with more capabilities. In the process, they decided that the CP/M 2.2 system used with the *Perfect* programs could be improved to more efficiently use the computer memory and circuitry. They devised a system they call CP/M 2.2e, the "e" denoting the enhancements they have added, some from public domain software and some cooked up at Plu*Perfect. Strictly speaking, Ed Plate (of the technical support division) writes that the system is "Plu*Perfect Systems' *Enhancements* for CP/M." However, the system label comes up after a cold boot at "Plu*Perfect Systems CP/M 2.2e" at the top of the screen, with the "A" CP/M prompt on the second line.

The Plu*Perfect CP/M 2.2e contains some mechanical controls through software modification. They have incorporated a disk-drive-automatic-turnoff that turns the disk rotation off after a short (settable) time delay. That eliminates a noise we don't need during our concentration on our writing. They have modified the type ahead buffer in the keyboard, from three stroke to twelve. A modestly good typist could outrun the keyboard buffer set at three strokes, especially when the buffer became filled. It takes a phenomenally fast typist to outrun the twleve-stroke buffer. There are additional features that emulate some of the upgrades Kaypro did in later machines that my 1983 version did not have, such as permanent, serial-port-changeable baud rate settings. The manual makes the point that the CP/M 2.2e is a commercial alternative to ZCPR, a series of public domain software packages that upgrade the CP/M machines' capabilities. I personally was more interested in the extended software capabilities.

The CP/M 2.2e "TYPE" command is substantially extended past that of CP/M 2.2. Not only can you scroll a file past the screen, but you can view it page by page, or even print it, by simple addition of a letter or two after the "TYPE" command. They even give you an instructional file of about 80 lines to let you practice the go-forward/back-up reading drill. The old CP/M 2.2 command "COPY" has been made into the substantially faster CP/M 2.2e command "FASTCOPY." They also included "SD," the "SuperDirectory" command covered in the July CP/M column, and "SWEEP," an early version of the "NEWSWEEP" public domain program covered in the June CP/M column. I still prefer the "NWSWP207" discussed in June, as it has broader capabilities.

The CP/M 2.2e has a "GO" command that will allow you to rerun the last program you ran with no further input. Not all programs will run, only those that will reinitialize themselves. For instance, the "SD," "PW" (the call up for *Perfect Writer*), "PIP," and "STAT" programs do reinitialize themselves, but some that don't are "DIR," "REN," "ERA" and "SAVE."

The documentation for CP/M 2.2e is good, though it could be written a little more clearly for the infrequent user. The instructions for installation and execution are very clear, and a cute command set on initialization tailor-makes the cold boot greeting personal to the installer. If there are two or more users on your machine, you may want to have each user make a personal copy. You can also preset the cold boot on any disk to prestart a particular program.

There is a special section in the documentation on installing the CP/M 2.2e in a Kaypro 10, and special technical notes exist for installation of CP/M 2.2e on any number of other devices (the Kaypro "Robie"), or devices having SWP coprocessor or Holmes Engineering speed-up boards. There are also technical notes for use of CP/M 2.23 with *SmartKey* in *Plu*Perfect Writer*, and a note for older versions of *NewWord*.

The approach to using CP/M 2.2e is to re-SYSGEN all your active disks, using the CP/M 2.2e working disk. No problems were encountered in forty or so disks of *Perfect Writer* and *Perfect Calc* or a variety of game files. The only quirks that did show up were in a special MBASIC game loading program (KUGRAM DISC NO. 129) were the games all worked and the "MB" loader did not, and in "UNIFORM." The quirk with "UNIFORM" was simply that the prompt was a "4," and transferring of files died after about 15K. Apparently the "UNIFORM" program may only be used with CP/M 2.2. I wrote Plu*Perfect to let them know so they can issue a technical note on it. Their response was that UNIFORM will work with their standard "interrupt system," or with the interrupts disabled, the latter a feature they added with all post-1984 versions of CP/M 2.2e. We shall certainly have further discussion on this point (both my UNIFORM and my CP/M 2.2e are brand new!).

In summary, this package of software is well worth the $32, even if you are not interested in the other packages Plu*Perfect offers. Plu*Perfect Systems, P.O. Box 1494, Idyllwild, CA 92349, (714) 659-4432.

UTILITIES

Keyworks 1.1

Published by: *Alpha Software Corporation, 30 B Street, Burlington, MA 01803, (617) 229-2924*
For: *IBM PC and compatibles*
Price: *$89.95*
Reviewed by: *John Walkenbach*

Keyworks is a relatively new entry in the increasingly competitive "keyboard enhancer" market. It was designed to compete directly against the likes of *ProKey*, *SuperKey*, *SmartKey* and a few other products that make life at the keyboard a bit easier.

Like the other programs mentioned above, the main feature of *Keyworks* is its macro capability. A keyboard macro is a shorthand way of inputting a more complex expression. A macro processor allows you to redefine any key or key combination into a string of characters. For example, you can define Alt-m (hold down the Alt key and type "m") to expand into "MicroTimes: California's Computer Magazine."

Although a common use for macros is to simplify repetitive input, macros can also be used for other purposes: to customize program commands, to rearrange the keyboard, or to set up turnkey systems for beginners or those not willing to learn all the intricate commands of an application.

Keyworks is a memory-resident program that you run once when you boot your system. It works in conjunction with your other programs, and waits in the background until called up with the gray + key. When you invoke *Keyworks*, you're greeted with a pop-up menu that gives you the option of defining a new macro, listing currently active macros, editing macros, or saving or retrieving a file of macros.

The most efficient way to use *Keyworks* is to keep a file of macros for each application. For example, your word processing macros will be different from your spreadsheet macros. *Keyworks* reads macros files into memory directly from DOS, via a batch file, or from within any application program. You can edit macros at any time through *Keyworks*' built-in macro editor. This editor lets you view all of your macros at once—a handy feature not found in other macro processor programs.

But *Keyworks* does a lot more than macros. It will blank your monitor after a pre-determined time with no keyboard input to prevent burning in of the screen's phosphors. A real time saver is its ability to execute DOS commands from within a program. For example, you can get a directory of your files, make or remove a subdirectory, change the current drive or path, and perform common file functions (copy, erase or rename). *Keyworks* can even format a blank diskette—especially handy if you're in the middle of your word processor and get the dreaded "disk full" error and you don't have any formatted disks available.

One of my favorite *Keyworks* functions is its ability to direct macro output to your printer. This allows you to send set-up strings to your printer to enable condensed, bold, or italic printing. You can also use *Keyworks* with a mouse. The program includes a command to define your mouse buttons, and its "moving bar" menu structure is especially suited for mouse movements.

Still another feature of *Keyworks* is its menu/windowing capability. It's very easy to create professional looking menus of your macros, which you call up with a single key. In addition, you can create text windows which pop up on screen and are hidden from the current program or DOS. This is useful for creating custom help screens. Although *Keyworks* is not the only program that offers these features, it is the only program that makes them easy to use.

You can pretty much customize *Keyworks* with colors and border styles of your choice, and its context-sensitive on-line help system comes in handy when you're getting started. The program's menus are displayed in a manner similar to *WordStar*'s. You can set up a delay so the menus only appear if you pause for a user-defined length of time.

It's obvious that *Keyworks* was developed to compete directly with some of the other macro processor programs. For example, it includes a utility to translate *ProKey* macro files, and a few features were borrowed directly from *SuperKey*: file encryption and the ability to call *SideKick* via a macro.

On the down side, *Keyworks* is something of a memory hog. Count on giving up about 55K of memory if you use *Keyworks*. With the cheap memory available today, this is not a problem for most people. But if you have a small system and need the memory to load a large program, you can uninstall *Keyworks* and regain the memory it previously used.

If you're looking to save some time at the keyboard, check out *Keyworks*. You'll have a very competent macro processor, and a nice array of other useful features—all designed to make your time at the PC more productive.

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Rising Star Expands Its Horizons

In an exclusive interview with Gordon Mastain, Executive Director of Marketing and Sales for RSI, **MicroTimes** learned of a new marketing plan that may help Rising Star rise even higher. Like their software, RSI's new marketing plan is innovative and definitely "user friendly."

Until recently Rising Star has been partially eclipsed by a contractual arrangement with Epson America, under which Epson had sole marketing rights to RSI's principal product, *VALDOCS*, a unique, integrated software program conceived by RSI's founder, Chris Rutkowski. That contract has now expired, and RSI plans to take over the marketing of all releases of *VALDOCS* beyond the *VALDOCS 2* version recently released by Epson for both the QX-10 and QX-16 desk top computers.

To further expand their sales base, RSI will be releasing versions of their software customized to run on the new Atari 520ST. The first Atari-compatible package will contain versions of *Valdraw* and *Valpaint*, RSI's powerhouse color graphics programs. These will be followed by selected modules of *VALDOCS* integrated software. Modules such as Edit, Draw, Mail, Spreadsheet, etc. will ultimately link to give the Atari 520ST a fully integrated software system.

RSI's major sales effort will be direct to users via mail and telephone orders. A few carefully selected retail stores will offer over-the-counter sales.

Much of the new marketing plan involves an innovation called "The Software Buying Simplified Plan." Under this plan, programs of common interest such as *Valdraw* and *Valpaint* (with or without a mouse) will be bundled together and priced well below the sum of the prices of the individual components. In most package sales the buyer will be given credit for any of the component programs he has previously purchased. Best of all, the sale price includes all future upgrades for the included programs.

The next edition in the *VALDOCS* series, *VALDOCS+*, will be sold under this plan with no additional charge for any future updates. This version will supersede the *VALDOCS 2* version released by Epson in June of this year. *VALDOCS 2* was a powerhouse of integrated software, but it was infested with bugs. During the past three months Chris Rutkowski and his programmers have literally been staying up nights to exterminate these bugs. With *VALDOCS+* comes their promise that if they can't develop a "fix" for any repeatable, significant bug within 60 days, you can ask for your money back. In addition, *VALDOCS+* will have an improved editor module that will let you work on several documents simultaneously. There will also be numerous additional features and improvements. Users who have purchased *VALDOCS 2* from Epson will be credited the full purchase price towards *VALDOCS+*. That's what RSI means by "user friendly" marketing!

— John McMullin

Worldwide IBM Network

In mid-July, the IBM Users' Group announced that it had formalized an agreement with ITT Dialcom, Inc. to provide a worldwide electronic mail and publishing network. The announcement signaled a major leap in the power and scope of electronic communications — on a private as well as corporate level.

According to IBM Users' Group President Neil Zachary, the new network will contain elements of traditional electronic bulletin boards as well as of large information systems such as The Source or Compuserve — and then some. In addition to being able to service users from overseas, the network will have the potential of providing conference telecommuting; with the system's capability of handling 1400 callers simultaneously, some unprecedented link-ups appear possible.

The Dialcom service is broken down into three basic elements — electronic mail, information systems (such as AP/UPI/Dow Jones wires, OPEX News Agency, Official Airline Guide, International Medical Tribune Syndicate, etc.), and SIGS (including a number of technically oriented sub-boards designed to connect users directly with manufacturers regarding problems).

At an IBM Users' Group meeting in Los Angeles in mid-August, Zachary admitted that the choice of the Dialcom network — the result of a year-long search — was made with the corporate user in mind, and not the home hobbyist. Special SIGS relating to corporate concerns (such as pollution or new legislation) are being planned and Zachary even suggested the possibility of private business sub-boards.

With basic rates that run from $20 during prime time to $12 after office hours (3 p.m. on the West Coast), it seems that the Dialcom service will indeed find most of its callers among business users. Fortunately there is no monthly minimum.

For further information, call (800) 435-7342.

— Jeff Spurrier

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World's Largest Video Game

Lode Runner has already sold over a million copies in Japan, so it seemed only logical for Brøderbund's Japanese division and Sony (which made the world's largest video screen, with a display area of 80' x 150') to join forces in the Jumbotron TV competition. Fifty young finalists were selected from 3700 applicants all over Japan for their *Lode Runner* prowess and brought to Tokyo for the event, in which each contestant tried to rack up the highest possible number of points in three minutes. All contestants were presented with *Lode Runner* sweatsuits and t-shirts by Brøderbund, and Doug Smith, the game's programmer, flew to Tokyo to present the awards. The winners: first place went to Yasutaka Fujii, age 12; second to Kaoru Haeno, 12; third to Yuki Sakamoto, age 11.

SIGGRAPH '85 In San Francisco

SIGGRAPH is the Association for Computing Machinery's "Special Interest Group on Computer Graphics." It has an active membership of over 11,000, including engineers, architects, artists, animators, filmmakers, hardware and software developers, scientists, mathematicians, and computer graphics professionals. Every year all these individuals get together to talk, share ideas, and show off what they have been doing over the past year. This year we were lucky to have the event take place at

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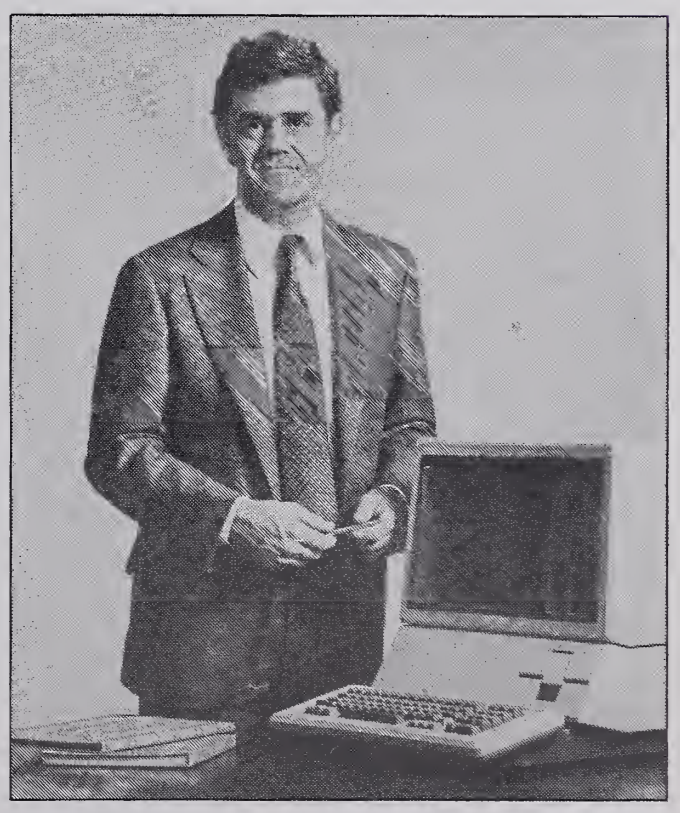

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A lot happens during a SIGGRAPH conference. Technical programs and panels allow for the presenting of papers on original research results, trends, and emerging developments. Courses are offered on a variety of topics, from the theory of color perception to the design of graphics workstations, computer animation and image synthesis, and aesthetic issues in computer graphic art for mass media. There is an art show featuring the latest achievements of artists and designers who use computer graphics in all media. Some of the art is two-dimensional prints, others are displayed on CRT's. There are also several installations, walk-through environments, and interactive video pieces.

The film and video show generates the same excitement that the opening of a feature film would enjoy. Its international reputation for creative and technical excellence insures SRO crowds at every screening. Tickets were at a premium this year, and though it's hard to believe at a computer show, scalpers made a bundle.

The main event for many of the attendees was the exhibition. Over 200 exhibitors displayed the latest in hardware/software for computer graphics. Several products were of special interest. Micro Core Ltd from England showed off a color Macintosh. This was based on a 512K Mac with additional graphics hardware based on an 8088 CPU and a 720 graphics controller. It included a frame buffer of 512K (upgradeable to 1 Meg), and gave 768 x 576 pixel resolution, with a capability of showing 256 colors at a time from a palette of 16.7 million. Output was RGB with a gen lock and frame grabber option. Cost was around $6000. Commodore showed the Amiga, a 68000-based color computer with an icon-based operating system. It was a mob scene at their booth (see last month's article for more details). Mindset showed their IBM compatible graphics systems. This is a hot little professional-quality graphics workstation that runs the Lumena graphics software from Time Arts. Dicomed and Genegraphics displayed their high-end workstations for designing business and presentation graphics. Kurta introduced the Penmouse, a cordless graphics hardware interface that combines the best features of a mouse, lightpen, and graphics tablet. Advanced Color Technology showed off a new color ink jet printer with an optional video interface (frame grabber). This slick combination will print out an image in 125 colors in 90 seconds. Don't ask about the price.

All in all it was well worth attending, as over 27,000 people can attest. Next year the show will be in Dallas; hope to see you there.

— Matthew Leeds

New Printers From Epson

Owners of the popular Epson FX80 and FX100 printers can now upgrade these dot matrix printers to produce copy that is almost indistinguishable from the output of daisy wheel or letter quality printers. The new "near letter quality" or NLQ is not just an enhanced version of the dot matrix print, but an entirely new type font very similar to that on a conventional typewriter. The new print fonts are produced by the standard nine-high print head, so none of the flexibility inherent in a dot matrix printer is compromised by the conversion. In the NLQ mode the print speed is reduced from the normal rate of 160 characters per second to 32 cps, which is still faster than most daisy wheel printers.

FX owners have their choice of two conversion kits. The Fingerprint conversion kit produced by Dresselhaus Computer Products has been available from local printer dealers for several months for a suggested retail price of $79.95. The kit consists of three multiprogrammed chips which are to be plugged into the main circuit board, replacing original chips. The kit comes with complete instructions for user installation. We installed ours in about 15 minutes, but for those unfamiliar with electronic components, we would suggest dealer installation.

Once installed, Fingerprint is controlled by simple inputs via the printer key pad. Over a dozen fonts may be selected. Most of these, however, are already available via keyboard escape commands in word processing software, or by the CHR$(27) commands in BASIC programs. The NLQ mode, which is really, new, can be keyboard activated by an ESCx1 or CHR$(27)"1" command, but it is usually toggled ON or OFF via the printer key pad. Letters printed in the NLQ can often pass for typewritten copy. Proportional spacing with NLQ gives very professional looking copy. Learning to use Fingerprint takes only a few minutes, and the results should make dot matrix printers fully acceptable for even the most formal business correspondence.

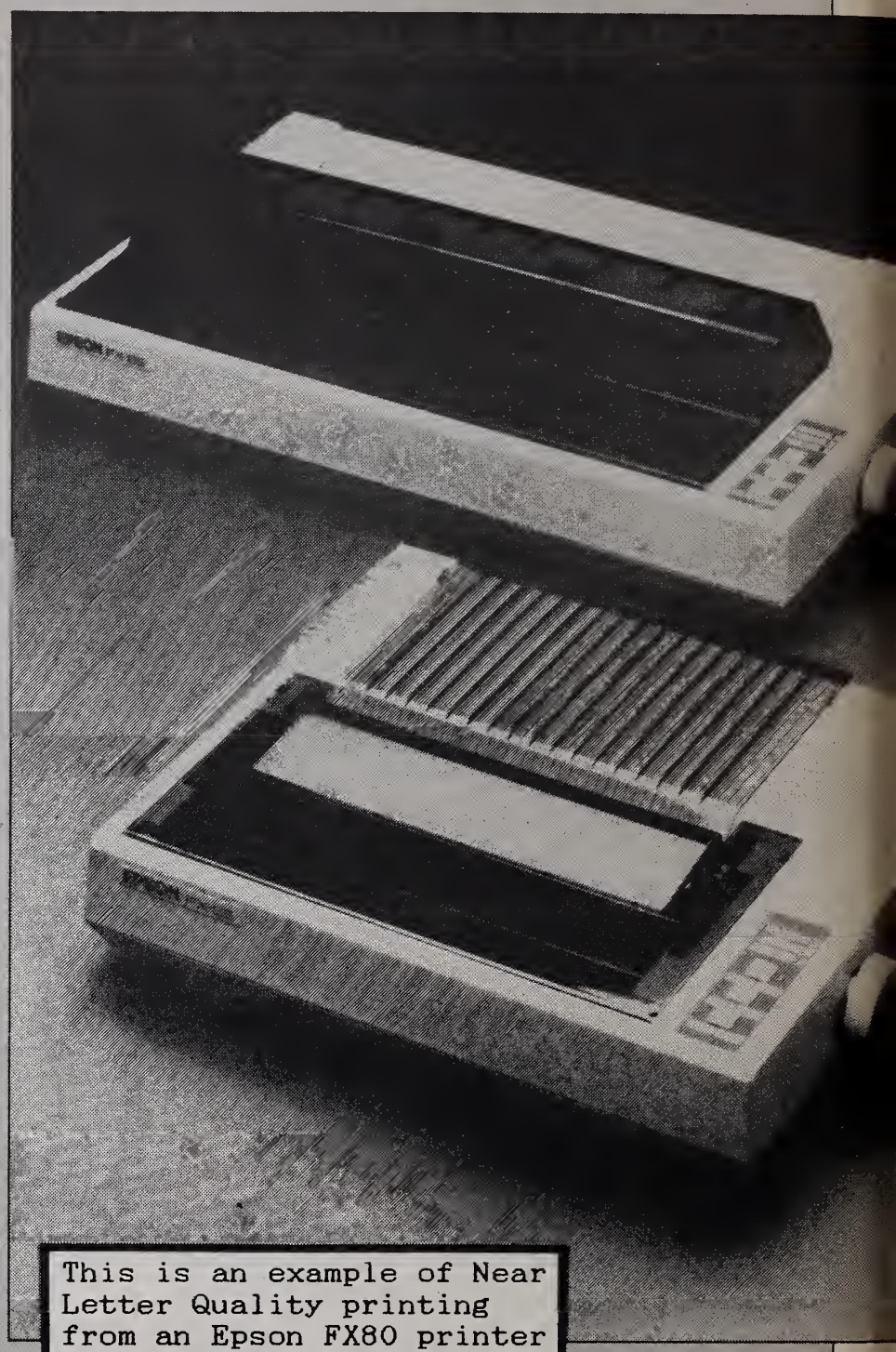
An alternative conversion kit will be offered by Epson America later this summer. This kit will have a suggested retail price of $85.00. Dealer installation of the Epson kit is required, and may push the total price to over $100.00. The Epson conversion is also controlled via the printer key pad.

In addition to providing the NLQ type font, the Epson conversion also increases the printer buffer from its present 2K to 8K, or enough to hold about six pages of text. For some computers this added buffer could be a valuable extra feature. Printing six pages at the NLQ speed of 32 cps could tie up the computer for an annoying period of time. For computers that feed the printer via a spooler file, the added buffer capacity is less important, since the computer can accept new input while printing is in progress.

For IBM users both conversions offer a special advantage. Unmodified FX printers can not download and use the IBM graphic character sets. With either conversion installed, moving one dip switch on the printer will permit full use of the IBM graphic characters. With Fingerprint, an additional dip switch setting will also facilitate use of Apple graphic characters.

Epson America has recently announced that their widely used FX80 and FX100 printers will be superseded by the new FX85 and FX185 models. The FX85 will have 80 columns and the FX185 will have 136 columns. These new generation models will feature NLQ print mode, an 8K buffer, plus full IBM graphic capability. The FX85 and FX185 are expected to appear later this summer with suggested retail prices of $499 and $699 respectively. With either of these new printers or upgraded earlier FX models, users can now have all the speed, flexibility, and graphics capability of a dot matrix printer plus the NLQ font for formal business correspondence.

— John McMullin



This is an example of Near Letter Quality printing from an Epson FX80 printer equipped with the FINGERPRINT modification. The quick brown fox jumped over the lazy dog.

Newly announced Epson printers models FX85 and FX185 will feature Near Letter Quality printing, full IBM graphics compatibility, and an 8K buffer.

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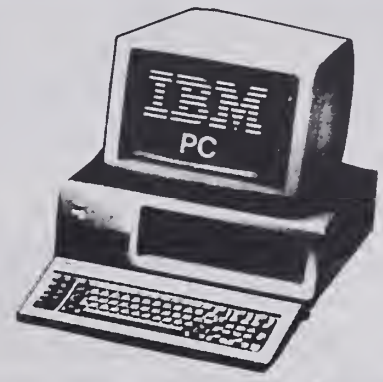

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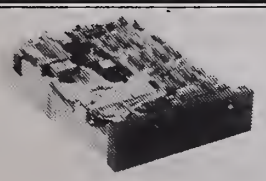

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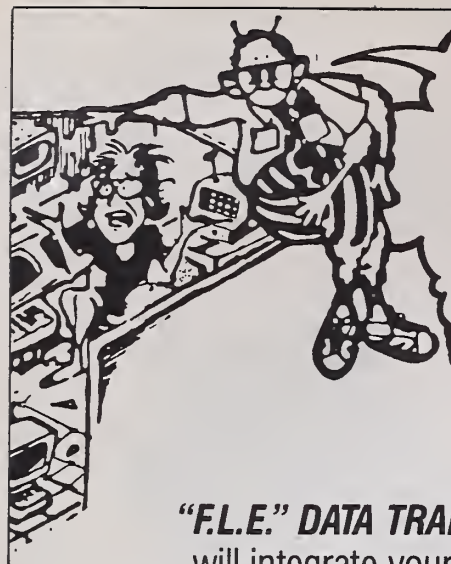

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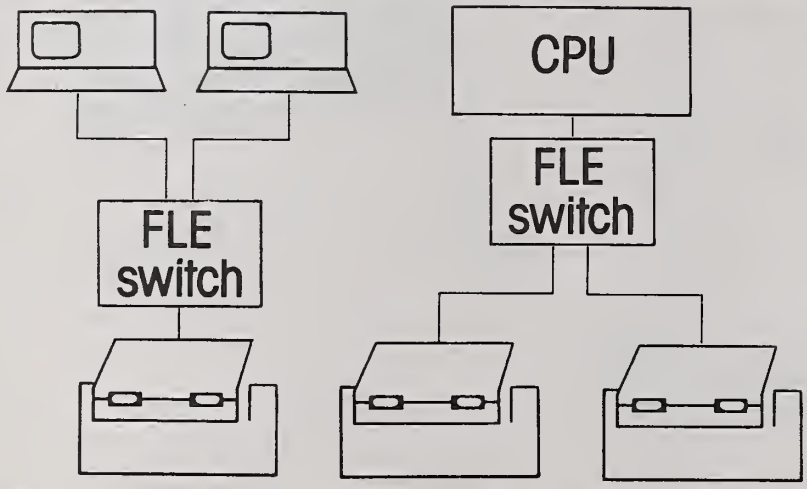

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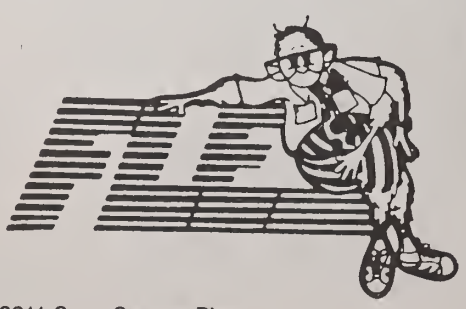

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New Products At Mac Expo

(Steve Jasik is the author of *MacNosy,* a disassembler for the Macintosh. He traveled to Boston's Macworld Expo last month and files this report on new products being shown.)

Hardware and peripherals: Hyperdrive was showing a 20 meg hard disk. Rumor has it that they have a 40 meg version in the works, along with memory upgrades beyond 1/2 meg. **Levco,** makers of the Monster Mac, showed a hard disk connection for the Macintosh — contact CJS Systems in Berkeley (415-841-7625) for information. **Micro Conversions Inc.** from Arlington, Texas (817-465-5758) showed memory upgrades for Macs (stand-alone or Hyperdrive compatible) of up to 4 meg.

Ready to dump your mouse? **GTCO** (301-279-9550) introduced a digitizing tablet for $600. Or get a mouse that flies — the **Captain Video** headset that moves the cursor when you move your head; available from **Personics** (800-445-3311). **Assimilation** showed the **Numeric Turbo Touch,** an enhanced version of their **Turbo Touch** track ball, with a full-function 22-key numeric keypad.

A new start-up, **Abaton Technology,** introduced the **Abaton Transform,** a patented hardware-software widget that translates Apple II software into Mac software. This is a tool for developers — contact me for more info (415-322-1386).

Software: Would you believe a **pictorial atlas program** for the Mac? It's available for $4 from **The Personal Computer Center,** 1 McNutt Hall, Dartmouth College, Hanover, NH 03755. Then there's **MacChemistry,** a neat program to display molecules, mixtures, etc., from **Fortnum Software** (818-355-7114). Or **MacMedic,** an electronic atlas of anatomy from **MacMedic Publications** (713-977-2655). **Consular Corp. (MacC)** showed off its optimizing **Linker** (removes the dead code that Apple's version leaves in). **Affinity Systems** of Louisville, Colorado (303-442-4840) has a super macro processor, like **MacTracks** but more powerful, slated to be in stores by mid-September. Its target market is **Jazz** users. Also, **Microsoft** was putting **Excel** through its paces, demoing the program using an AT as a file server (directly reading **1-2-3** files off it, etc.

Soft Style of Honolulu (800-396-6368) showed **printer drivers** for the HP LaserJet, HP ThinkJet, TI 85X/86X series, Epson and Toshiba printers. **Telos** was demonstrating **Business Filevision,** with expanded capabilities.

Sidekick, shown here in its IBM version, is now available for the Mac.

Borland entered the Mac world with a version of **Sidekick** for the Mac — 13 integrated desk accessories including a phone dialer, calendar, terminal emulator, recordkeeper, calculator, etc.

Altsys Corp. (214-596-4970) was showing version 2.0 of **Fontastic,** a terrific font editor, and a prerelease that works on laser printer fonts. (This item will be available in December.)

MIDI interfaces abounded; at least three were shown, along with sound digitizers, etc. **Marc Zimmer,** the author of **MacFractals,** impressed a number of Apple employees with his **sound digitizer** (marketed by MacNifty and available in mid-September), a hardware/software product that speaks forward or backwards, has reverb, etc. In the same vein, **MacMike** by **Phonetix** (212-570-7449) turns the Mac into a sound lab, complete with real time and storage oscilloscope, waveform editor, filtering, speech processing, and an FFT.

New books of interest to developers: **Macintosh Revealed** by Hayden/Apple Press (2 volumes); **The Complete Macintosh Source Book** by Doug Clapp and Pat Ryall, $25 from Info Press (yes, it is complete); **One Flew Over The Quickdraw's Nest** by Greg Lewis, $25, available from MacAmerica, 18032-C Lemon Dr., Yorba Linda, CA 92686; **Macintosh Pascal Illustrated, The Fear And Loathing Guide,** by Scott Kronick, from Addison-Wesley, $17.

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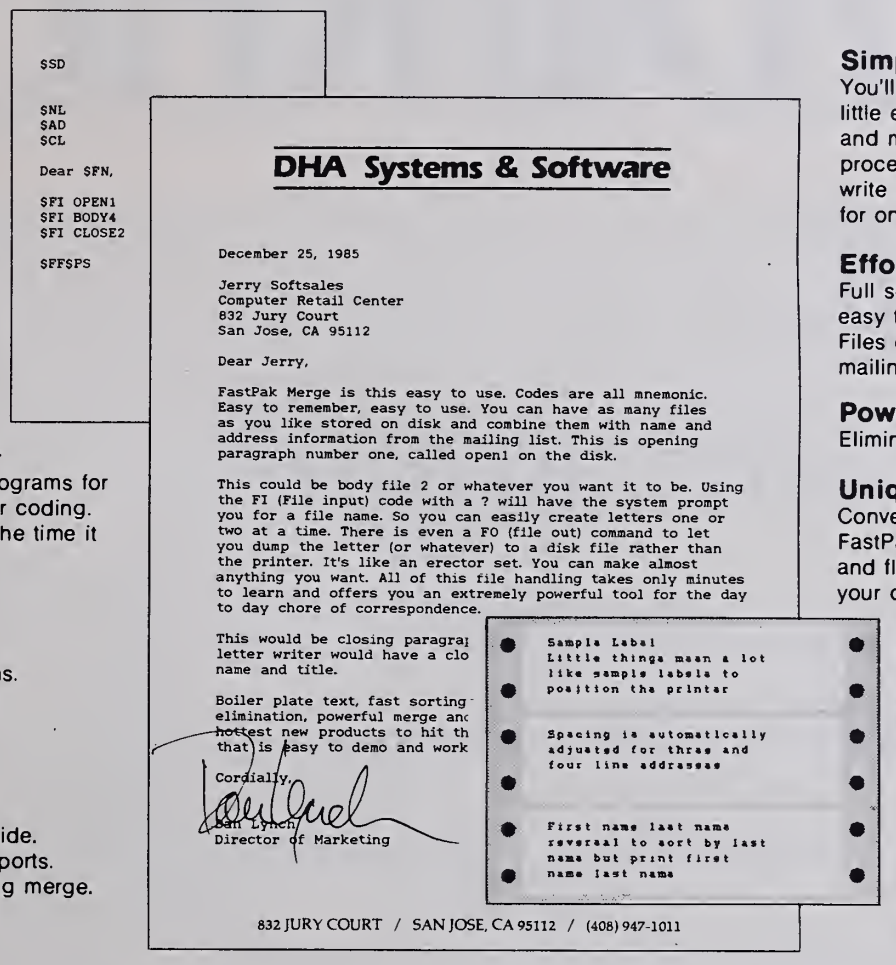
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BRØDERBUND

Next Stop World Domination?

In which the Carlston brothers discuss their formula for success; also, their thoughts on the IBM priesthood, their plans for the future, the capital of Outer Mongolia and the whereabouts of Carmen Sandiego.

By Mary Eisenhart

If any software publisher has its finger firmly on the pulse of America's computing heartland, it's San Rafael-based Brøderbund. It's no longer a surprise that every week *Billboard*'s software charts show Brøderbund with five of the 40 best-selling programs in the country. What's more interesting is the diversity and longevity of the line: *Karateka*, an arcade-style game, #2 on the Entertainment list, 22 weeks on the charts; *Bank Street Writer*, a word processor, #5 on the eclectic Home Management charts, 99 weeks on; *The Print Shop*, a program for designing your own greeting cards, stationery and the like, evidently a permanent resident of the #1 spot on the Home Management chart, with 57 weeks on; at #2 and #4, *The Print Shop Graphics Library I* and *II*, additional graphics for *The Print Shop*, with 20 and seven weeks on the charts respectively (they're new products, after all). Upcoming offerings, a graphics and animation program called *Fantavision* and a new series called Explorations, promise to be similarly successful upon release.

There is, as you might suspect, a story here.

One fateful day in 1978, Doug Carlston, who was practicing law in Maine at the time and facing another of New England's winters, saw a personal computer at his local Radio Shack, thought it looked like a neat toy, and bought it. This was a source of considerable hilarity to his brother Gary, who regarded the new acquisition with scorn and derision.

Not that Doug was a stranger to computers; he'd spent some time fooling around with various machines in the Carlstons' Iowa youth, and had had a part-time programmer's job while attending Harvard. He'd given the job up, though; for one thing, five-hour waits for a program to come back from batch processing weren't his idea of fun, and besides, he says, "It interfered with one's basketball."

However, the winter was long and cold, basketball wasn't much of an option, and Doug spent a good deal of the time playing computer games culled from magazines.

When the charms of Maine blizzards wore off, Doug joined Gary in Oregon and began to consider the possibility of getting into the software business, the idea being that Doug would write programs and Gary would sell them. Their expectations were distinctly modest — Gary recalls that "The first week, my vision, if you can call it that, of the company was to make $400 a month on the side and find a job one of these days."

The company struggled along, largely as a mail-order enterprise, for a few months, selling Doug's *Galactic Saga* programs, *Tank Command*, written by their brother Don in Iowa City, and eventually a couple of programs licensed from a Japanese company that happened to have an adjoining booth at the Computer Faire.

Fate, however, was about to take a hand, in the form of an itinerant Swedish basketball team.

SOFTWARE:

Doug (l) and Gary Carlston, demonstrating the theory that work and fun coexist nicely.

PHOTOS: PAT JOHNSON STUDIOS

At a somewhat earlier stage of his career, Gary had spent five years living in Sweden and coaching a basketball team. In 1980 it happened that the team was on a world tour and stopping in San Francisco. Gary flew south to see them, planning to sell a little software as long as he was in the neighborhood. He sold quite a bit more than he'd expected, and on his return Doug took the proceeds and began a series of cross-country selling expeditions, walking into stores and asking the proprietors if they might like to buy some software.

These efforts not only improved sales dramatically, they paid long range dividends. Says Doug, "We met hundreds of computer dealers, and many of them are the computer dealers of today. We worked with them, went through the same evolution they went through. When the mass merchants came along, we didn't immediately abandon ship to its dealers, Brøderbund regularly holds brainstorming sessions in which employees discuss the type of products they'd like to see. From idea to finished product, each program is subjected to rigorous quality control, from editors who make it run smoothly to a crack team of testers, many in their teens, who work with "finished" products for weeks, trying to crash them, looking for bugs and generally using all their ingenuity to find and eliminate anything that could possibly go wrong.

A bit of exegesis on the company's name and logo, or, as Gary puts the oft-asked questions, "How come you have the slash through the O? Are you Scandinavian or something? And how come you have those three crowns?" "Brøderbund" translates to something like "brotherhood" and is pronounced "Bruderbund." The slash through the O, says Gary, was originally conceived as a sort of pun on the computer's zero character, and to convey a sort of quasi-Scandinavian ambience. Are they Scandinavian? "Quasi," says Doug. The three crowns were originally devised to signify Doug, Gary and their brother Don, who wrote one of the company's first programs. Eventually the third crown was occupied, as it were, by their sister Cathy, who joined Brøderbund in 1981 and now serves as Vice President of Strategic Planning and Business Development.

Interviewed recently at their San Rafael headquarters, the brothers (Cathy was out of town) discussed the philosophy behind Brøderbund's success, the mass appeal of their products and their plans for the future.

Doug Carlston: "The typical IBM user uses two or three programs and that's it. The average Apple II owner buys between five and seven hundred dollars' worth of software per year, every single year."

Your product line is pretty diverse — is there any common denominator?

Doug Carlston: They're not any more diverse than a book publisher's line. We really are a publisher of products that are created all around the world and submitted to us for publication, very much as a Simon and Schuster operates in book publishing.

The common element that ties them together is that both conceptually and in design they're absolutely state-of-the-art in every case. They're not always huge markets; it depends an awful lot on who we're trying to aim it at.

Gary Carlston: And we're not always the first to do a subject area. We didn't have the first word processor, we didn't have the first printing program, and so on.

DC: But often you look at a marketplace that other people find and say, "Now why isn't anybody doing that with state-of-the-art technology?" It's not that hard to do, we know what the standards are, just to enforce them...

I could look around right now at several major niches in the marketplace, and if you looked at the products, you wouldn't think they were state-of-the-art. It's just that these are the only products in that niche. Every one of those represents an opportunity.

Are you about to take advantage of any of those opportunities?

DC: Quite a few of them. I'd say ones that fall in that category are home finance management, which is not currently state-of-the-art in the products that are selling best; curriculum education software, which is nowhere near state-of-the-art; there's some areas that we can't talk about yet, areas that are even further afield, that are either not being done at all or not quite up to snuff in the marketplace. Some of the animation and drawing programs that've been selling quite well are not — well, they may be state-of-the-art until we release our latest product [*Fantavision*], but that will *change* the state of the art. So by pushing the boundaries you can also create a competitive advantage.

Do you revise your existing software frequently?

GC: Yes. *Bank Street Writer* is currently in its third or fourth incarnation, in response to customer requests.

DC: Customer requests and changes in the marketplace. For example, when we started with *Bank Street Writer* on the Apple, most Apple owners used the Apple computer with a television set. Television sets in America don't have resolution to enable everybody to read characters on more than a 40-column width on the screen. However, now over 90% of the people that use Apple computers use them with monitors, which can handle 80 characters across with enough clarity that you can read them without eyestrain. We had to change the program to accommodate those people.

Do you feel a greater affinity with the Apple market than the IBM market?

DC: It's changing. In the past it's been a better market for us. The IBM market is not a very deep software mar-

sell all of our wares through the mass-market channels. We added those in a reasonable and conservative manner — it's only 20% of our sales. The bulk is still the people we've supported and who've supported us since 1980. They're old friends of ours. We find out what they think they can sell, and that's what we develop."

As the company grew and prospered, the Carlstons moved their operation to the Bay Area in September 1981. Gary recalls, "Technically we were getting scared. We didn't know what was going on. Apple had changed their DOS, and we didn't know" — a potential catastrophe since most of their market was Apple users.

Brøderbund today occupies four buildings, mostly in Marin County, which the Carlstons find is well within "rumor distance" of Silicon Valley. The company's manufacturing and production facilities are all local. The software line is carefully planned for diversity and quality, and comes from a variety of sources, outside and in-house. In addition to the input the company receives from

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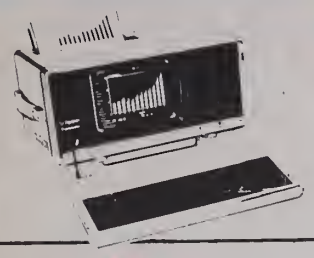

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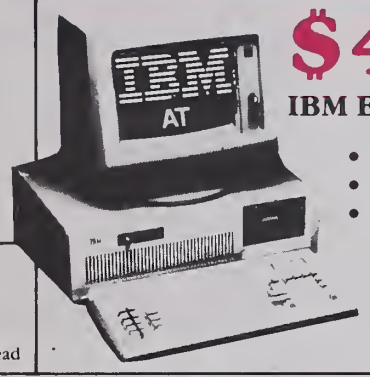

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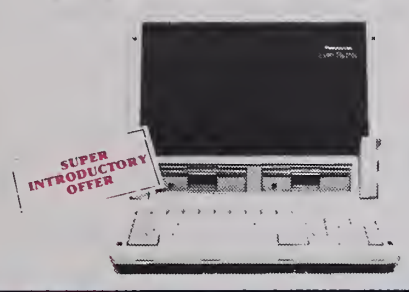

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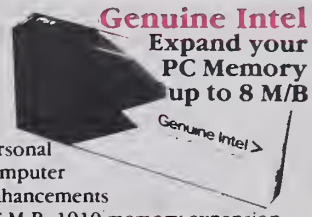

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ket. The typical IBM user uses two or three programs and that's it. It's been a dedicated machine for one particular purpose.

The average Apple II owner buys between five and seven hundred dollars' worth of software per year, every single year. The Apple market last year was 70% an aftermarket. That means that 70% of the software sold was sold to people who had not just bought a computer. For every other machine out there it's less than 50%. So it's a mature market in a different way from other markets. And that means that even as hardware sales level off and decline, that doesn't mean software sales decline, because you're creating homes that have adequate hardware to sustain a software market.

It's like creating literacy out there. Once you create literacy you can sell people books, but until you have a literate population you can't.

Well, a lot of people learn to read English, so you can write your books in English and sell a lot of them. You have a larger number of people that've learned Russian, but don't read very many books. IBM is certainly the standard, and it's there we're putting the greatest emphasis next year. But it's a come-along market, one that's taken some time to evolve, because it's been perceived as primarily a business market, and a business market is much more highly focused market than the personal market.

GC: We read someplace that the Apple and IBM software bases are identical, but the Apple software is still technologically superior. It's just slicker, getting more power out of the machine, and so on, although Apple is losing that, because more people now go back to the IBM. What that says to me is that a lot of that polish and a lot of those techniques are going to be moving more into traditional IBM markets, and to high-end personal use products.

DC: Nobody's ever going to be willing to install a program again once they've used programs that install themselves. Maybe that's the simplest explanation.

Your IBM evolved out of a market that was very, very tolerant of very obscure and complex procedures. It went through a priesthood to the ultimate user. The priesthood is rapidly eroding, because people are using these directly rather than through their MIS departments.

Most people that're using microcomputers don't have a whole lot of time to get fully educated in the relatively arcane areas. It's not their principal business; they get these things to improve their work, and it doesn't improve your work if it's taking six hours a day of your time.

The software hasn't quite caught up. If you look at the large body of software in the marketplace, it still has to be installed by a professional. Take a look at *dBase II*, the best-selling database program. Give it to any non-programmer and ask them to do something with it within the next week. There's absolutely no possibility.

What kinds of alternatives do you offer?

DC: The alternatives are already there. They've been pretty fully implemented in markets like the Apple market. You create software that moves the boundary between the expert and the machine. It moves the zone of responsibility from the expert over to the machine. It means that you can take the person who's far less technically proficient and get the same level of performance out of human and machine, where formerly you needed a person with a much higher level of expertise.

They used to call it user-friendly. Basically you take the interface between the man and the machine, and you make the machine understand the man rather than the man understand the machine. You write programs that take into consideration the way human beings think.

GC: You can substitute "person" where he says "man." He's old-fashioned.

Do you foresee changes in the company as the Amiga and the Atari ST and God-knows-what-else come along?

DC: We have one advantage, I think, over other people. We've already been in a marketplace far more radical than the American one. We have to support 18 computers in Japan; we've only got five in the United States.

We've done it with a lot of help throughout and a lot of licensing in Japan; we haven't done it all ourselves. But we've at least had some exposure to a marketplace that's far more complex than the American marketplace.

It was about two years ago that we started having our products sold in Japan. It started very slowly, and about a year ago it really took off. We've had products that have sold units over there that we can't begin to compete with over here; *Lode Runner* sold more than a million units over there.

Do you have any other significant foreign markets? Europe?

DC: We do do business in Europe, and have for some time. I think Canada is our largest [foreign] market, Japan is second, Australia is third, and Europe a distant last.

They're not buying the same quantities of machines; it's a very fragmented market, and it's a cassette market. They haven't got disk drives, and most of our software is designed for disk drives and printers and things like that. It's still a very primitive market. It's changing, but it hasn't changed yet.

Do you go out looking for software developers, or do they come to you?

GC: We're very aggressive about going out and looking for developers. We have a person whose title is "ambassador," and he speaks to 20 – 25 user groups a month, showing products and giving the pitch of "When you develop your software, contact Brøderbund, we want to be your publisher."

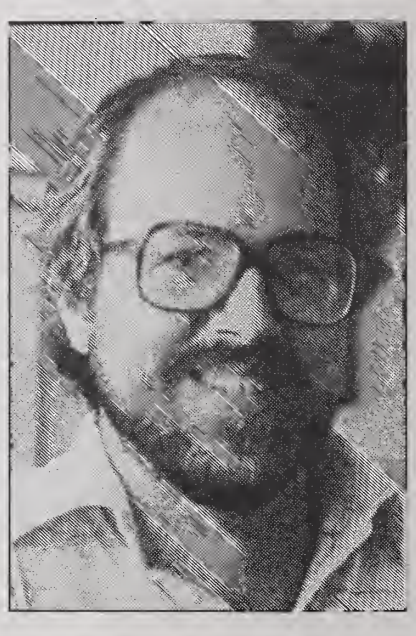
Every single package that goes out has a little card in it, saying, "We'd like to see your programs, anything you're developing."

DC: We have an acquisitions department that reviews every product submitted, and submissions run anywhere from five to eight a day. Every single one gets looked at, every single one gets reviewed. If we think there's potential there, even if we're rejecting a product, we'll often try to send back suggestions.

GC: An example: *Print Shop* was rejected the first time, because it would not print. It did beautiful screen graphics that you could send on a disk. We said, "If it would print hard copy..."

DC: There were a lot of other things too.

GC: Initially they [developers David Balsam and Martin Kahn] were re-



Gary Carlston: "Products have to show somebody's passion. They can't be created purely from a business objective — go after that market."

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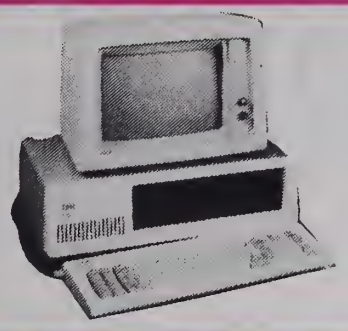

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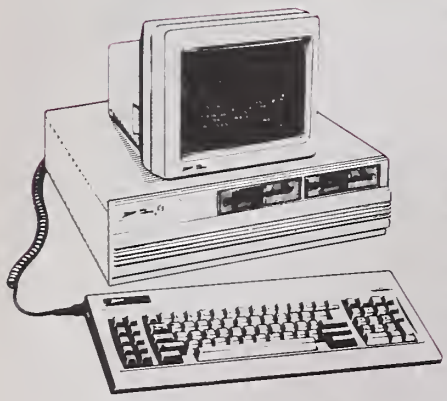

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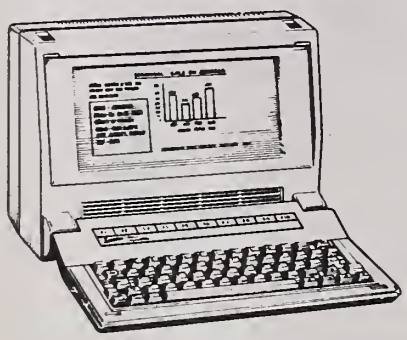

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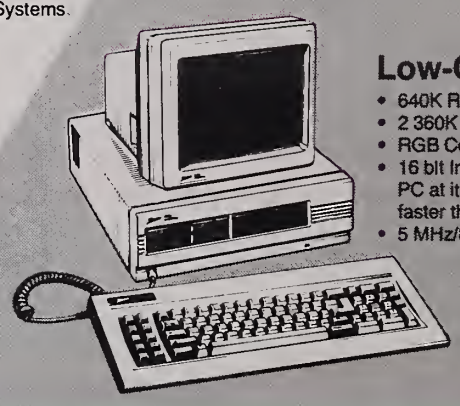

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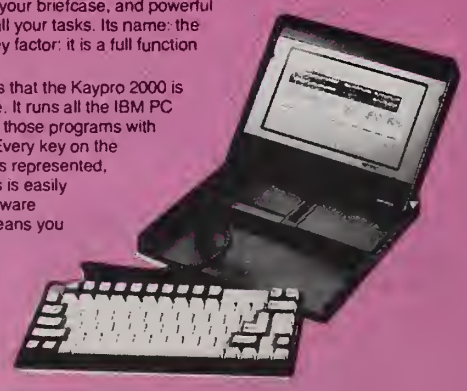

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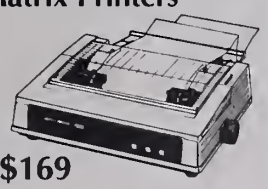

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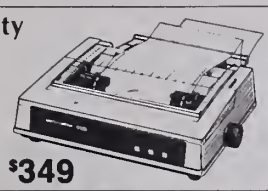

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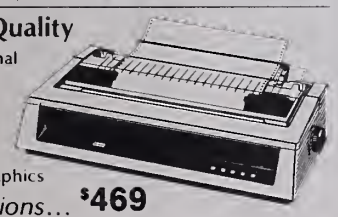

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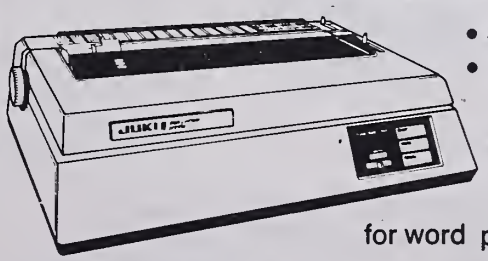

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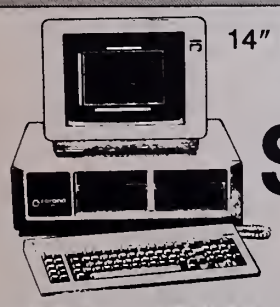

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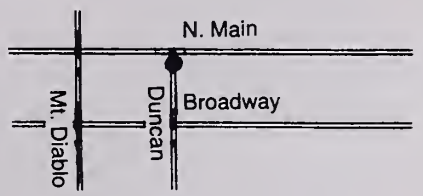

415/930-9600

sistant, but then they thought about it and came back and agreed to do it. I don't think they regret having done it...

DC: They brought it to us in September and told us, "This has to be out by October, in time for Christmas." It was released the following June.

You have to be persuasive to convince someone to skip a Christmas, especially when you feel like everybody is rushing to do the same product and get it out there. To tell them to slow down, get it right, because you only get one crack at it, you can't fix something that wasn't put out right the first time.

One of the things that Gary and I try to tell people is that the last 5% of a program probably translates to 50% of the sales. I think it's probably closer to 90% of the sales. But if you don't do that last 5%, you're simply forgoing most of the marketplace, because most of the marketplace doesn't have patience with people who didn't take time to get it exactly right.

Gary Carlston: "If *we* would've enjoyed it at age 12, and if we still enjoy it now, then it's what we want."

What kind of new products are you coming out with?

DC: The way the company works is that people tend to get bees in their bonnet. They wander around until they find someplace that's fertile, and they plant their idea and see what comes of it. The *Science Toolkit* [part of the Explorations line] is one that's been a bee in my bonnet for a long time, and it finally evolved to product size.

It's both hardware and software. It plugs into a joystick port, and it's a little box that allows you to attach experimental probes to your computer. You have a whole variety of tools — a thermometer, a bar strip recorder, a light meter, a timer — all in the software, as well as connectors that go to little photo cells and thermistors and so on. There's a series of over 100 experiments that you can perform on the world around you. You can basically turn your computer into everything from a security system for your house to something to do experiments measuring the rate of acceleration when you drop a ball; it uses the computer along with the hardware to perform all these experiments.

It also will have add-on modules that will focus on particular areas — the weather, or your body — and turn your computer into a monitoring device for the world around you.

It was based on my childhood recollections — Gilbert chemistry sets, the kind of things you could buy on the back pages of *Boys' Life*.

I think the programmers did a fabulous job. They got a guy from the Lawrence Hall of Science to work with them to design experiments. A couple of our most creative people over in Product Development worked on designing and programming the product itself.

The suggested retail is $59.95. For this Christmas it'll just be available for the Apple; we'll do other versions next year. We're just real excited about it.

Carmen Sandiego [*Where In The World Is Carmen Sandiego?*] is another part of the new Explorations line. It's another one we're kind of fond of, which came out of one of Gary's ideas.

GC: Once again, it's from a childhood fascination with, in this case, almanacs, which all of us share. We used to lie there and ask each other questions out of the almanac...

DC: What's the capital of Outer Mongolia?

GC: [Instantly] Ulaanbataar.

The notion was that educational software was boring and that entertainment was still pretty boring, and this was to do an adventure game where the solutions are in the almanac. You would have crimes you'd need to solve, all done with graphics and animation, where the perpetrator of the crime would leave clues behind that would require a little ingenuity to solve, for example, a piece of green silk and a drachma. You look and see which countries might have flags with green in them or use the drachma.

DC: I would've gotten it wrong — I would've gone, "What countries produce silk?"

GC: Well, that's another way of doing it.

And so it teaches people to use reference materials, but adults like it for very much the same reason they like *Trivial Pursuit* — they sit there and try to play it without the book.

There are over 16 million different scenarios, each time you boot it up, so you never play the same game twice. We wanted a game you don't get bored with. Sooner or later you'll have all the clues, and then we'll sell another clue disk.

Basically if you make the wrong decision you get lost. You realize that nobody knows the answer to your questions.

You realize you're hot on the trail when people start throwing knives at you.

Both of these products are internally generated — by Brøderbund people rather than outsiders — with the intent of saying, "This is the style and quality that we want in our Explorations line."

This line has redeeming social values; whether or not it's pedagogically correct is not relevant. We said, "If *we* would've enjoyed it at age 12, and if we still enjoy it now, then it's what we want."

This brings up one of our basic tenets in publishing, which is, we publish stuff we like ourselves. We don't create a model market research.

DC: We publish for ourselves.

GC: It seems the surest indicator. Products have to show somebody's passion. They can't be created purely from a business objective — go after that market.

Probably if you look at places where we fail with products, it's probably because we're going after a market we weren't in love with.

Do you have a specific example?

GC: No, [smiles] but if you come back in a year and say, "How come that product failed?", that's the excuse I'll give.

What do you think makes your software so successful generally?

DC: I'd say the amount of editorial work that goes into each product would flabbergast most people — the number of man-years that go into a product that the author has submitted as a finished, completed work.

GC: It's often very difficult for programmers that have been published elsewhere when they come here for the first time. They say, "Elsewhere it would be done by now. They would publish it as is."

But of course, that's also the reason that allows us to attract developers who want a product to reach its full potential. They know we won't let it out the door prematurely.

DC: And they also know we add a lot to the product. It's not just "Wouldn't it be neat if you added this feature?" This is a really professional group whose focus is an editorial development of the product.

Plus a very strong and competent technical staff who works behind them, to help them with areas that the original authors may not be able to handle. They'll handle machines that the original author may not be competent to address, and basically provide the technical backup that many authors, however good, frequently need.

GC: It's a little like the attitude I heard on NPR. The new GM car factory is going in in Tennessee. There's already a car factory in Smyrna, Tennessee — it's a Nissan factory. And they were interviewing this woman who worked there; she's on the line, she has a really strong hillbilly accent — "Waal, they'll never build cars as good as *we* build cars, 'cause with us and the Japanese helpin' us, we build the *best* cars."

People are motivated more by building quality than by almost anything else. The quality standards here are imposed from below, they're not imposed from above. If we tried to push something through with bugs in it or defects in it, the people in testing — teenage kids — would come in here and say "No way." □

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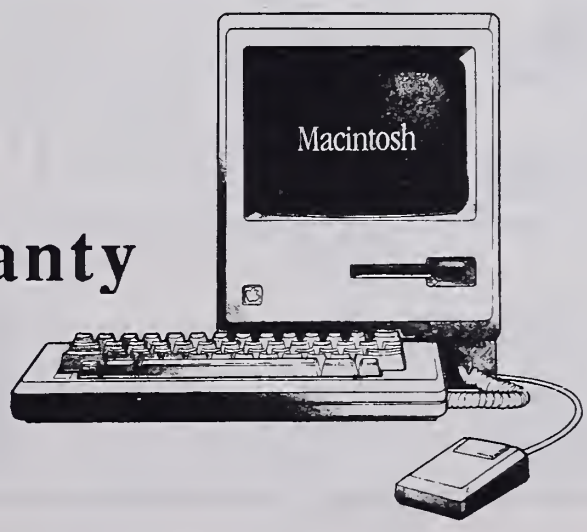

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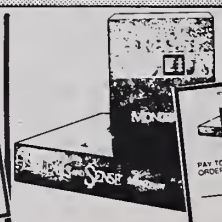

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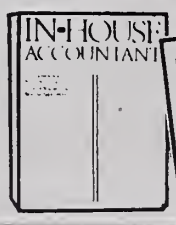

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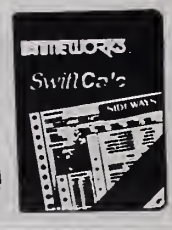

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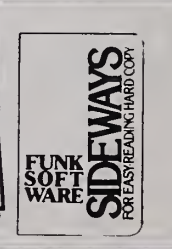

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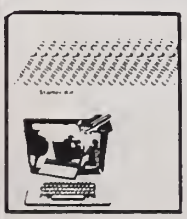

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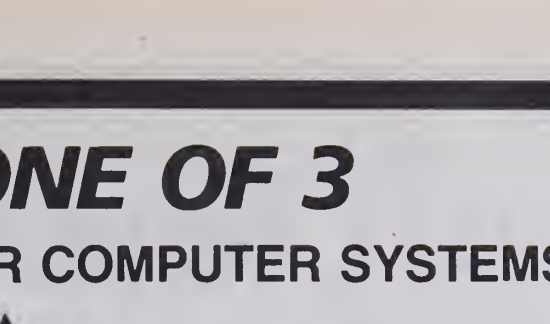
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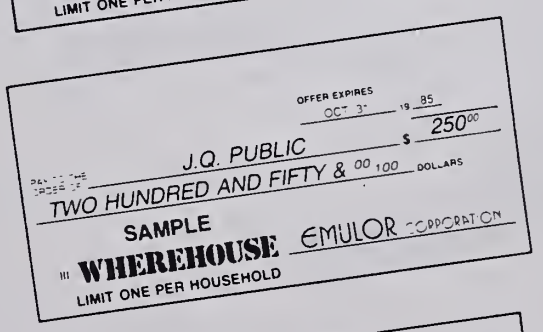
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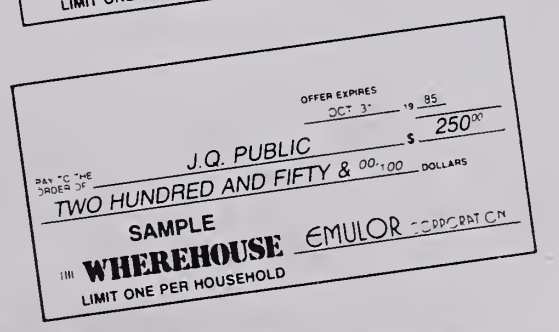
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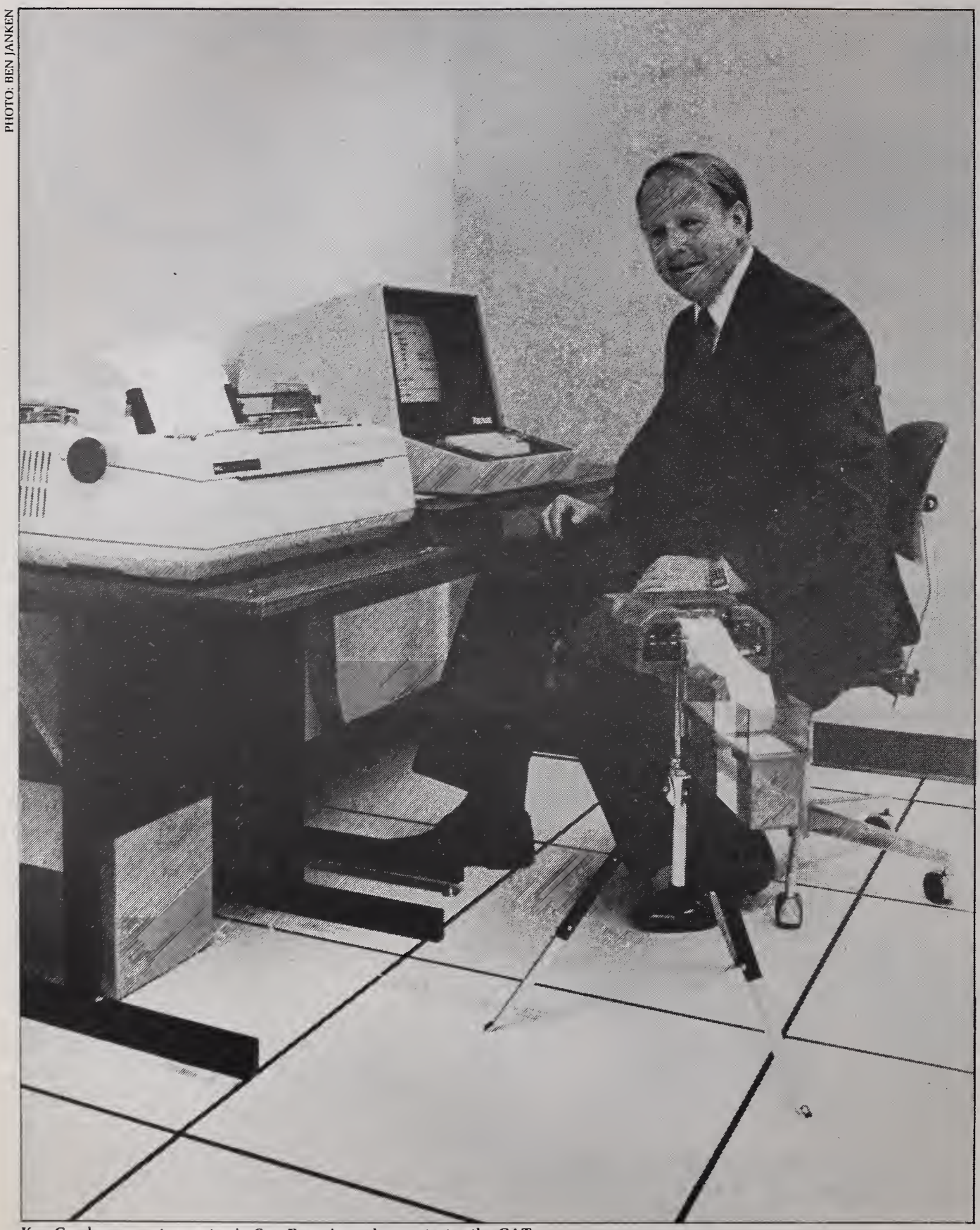

Ken Combs, a court reporter in San Francisco, demonstrates the CAT computerized transcription system for court records

In The Electronic Age

By James Evans

If a modern Perry Mason ever reappears on television, purists might notice a small yet significant change in courtroom procedure.

When either the defense or prosecuting attorney wants to be certain of specific testimony, instead of requesting the court reporter to read it aloud, they'll read it themselves on computer terminals on their desks. Monitors also will be on the judges' bench, and even in the offices of attorneys throughout the world if necessary, for them to study testimony seconds after it is spoken.

Also, terminals will be available for people with impaired hearing so they may follow the trial as it progresses without signing translators as possible distractions to court proceedings. For the genuine Perry Masons of the legal community, this is not some primetime fantasy, but is taking place now in courtrooms across the country.

Computers, which have been slow to make their mark on the law, are in this case introducing some welcome speed into an infamously sluggish justice system. Transcripts of testimony that once required many tedious days at best, and often weeks into months, can be delivered electronically as the testimony occurs, with printed copy usually provided within hours.

Take, for example, the recent New York libel trial of CBS on charges brought by retired Gen. William Westmoreland, a former commander-in-chief of U.S. forces in Vietnam. During 68 days of testimony, 9,745 pages of transcripts were generated. Previously, using traditional stenographic machines, those transcripts would have required a court reporter, with a team of secretaries helping to edit and type, weeks, if not months, to prepare.

Instead, with the use of computers, printed transcripts can be ready within hours after witnesses have left the stand. In the CBS trial, which was settled without a judgment, lawyers and the press received the morning's transcripts the same afternoon. According to Joel Hillman, chief court reporter for the Federal Court of the Southern District of New York, as many as 60 pages of transcripts an hour were produced, accessible both in type form and computer data.

What makes this speed possible is a system called computer-aided transcription (CAT). It is being embraced not only by court reporters eager to enhance incomes that already reach upwards of $60,000 annually, but also by law firms seeking an edge on competitors, and by judges anxious for quick delivery of testimony as a means to cut the enormous backlog of cases clogging the courts.

The appellate courts are especially concerned about the time lag between trial and prepared transcripts, and recently have publicly criticized

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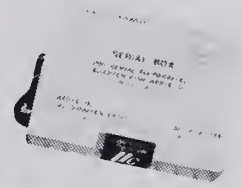

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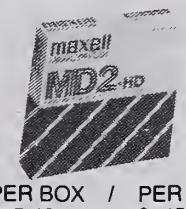

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Depending on the volume of testimony, high speed printers and copiers can have collated transcripts available within a week, and in most cases on the same or the next day. Testimony also is available electronically on monitors in the courtroom and elsewhere, as fast as the reporter can record it.

court reporters for laxity bordering on dereliction of duty. Justice Anthony Kline, presiding justice of Division Two of the First District state Court of Appeal, told the legal daily *The Recorder* that his court was "becoming a lot stricter with court reporters than in the past," and has "seriously considered contempt proceedings with court reporters who are unconscionably late in providing transcripts."

Reporters now have 60 days plus a possible 20 day extension to produce trial transcripts in criminal appeals, and 90 days to deliver them in civil appeals. However, according to Division Five Presiding Justice Harry Low, who also complained to *The Recorder*, he has known cases where transcripts were delayed up to two years.

Justices may find reporters "not competent to act as official reporter" in cases of tardiness, and require the reporter to concentrate exclusively on the transcript until it is finished, even if it means sacrificing income from other work. In extreme cases, the court may find reporters in contempt for missing a transcript filing deadline, though justices rarely have resorted to such action.

As if augmented earnings and threatened contempt citations weren't enough reason for adapting to the new technology, court reporters are facing a challenge from another direction. For years they have been hounded by the possibility of being replaced by audio recording machines. Court reporter organizations, such as the California Court Reporters Association (CCRA), headquartered in Sacramento, have effectively lobbied against the use of audio equipment in courtrooms, but with the justice system under pressure to reduce the backlog of cases, that may be changing.

In May the Assembly Judiciary Committee (AJC) unanimously approved legislation that would allow the Los Angeles Superior Court to replace reporters in certain circumstances with audio recording equipment. The bill, AB 825, authored by AJC chair Elihu Harris (D-Oakland), would authorize use of the machines for a three year experimental period. Audio recording devices are now employed in some municipal courts, but California law prohibits use of the equipment in courts of record.

CCRA president Candice Rees responds to the proposed bill by charging that transcripts generated from such a method would be substantially less accurate than those produced stenographically. Audio recording machines, she argues, don't discriminate between sounds and words, nor between similar sounding words. They also often fail to pick up low-voiced testimony. The legislation was in the Senate Judiciary Committee awaiting review as of Aug. 16.

"That bill is not in its final language," says Rees. "We're still negotiating with its proponents [Harris, the state Judicial Council and the Los Angeles Superior Court]. Our position is that the state-of-the-art in court reporting is a live reporter using a computer. Audio tapes are not a better answer in either cost-effectiveness or accuracy than CAT."

Developed a decade ago and used selectively for the past five years, CAT, with some wrinkles that need to be ironed out, is rapidly being recognized as a boon to everyone involved in the justice system, even with potential legislation favoring expanded experimentation with audio equipment. Although only a third of the nation's 30,000 court reporters currently use it (with 35 percent having adopted it in California, according to CCRA figures), CAT is already signaling an acceleration of interest in computers and data communications by both the stenographic and legal professions.

"It's the wave of the future," predicted Ken Combs of Combs and Greenley in San Francisco, the largest court reporting company in the city. "Not everyone is using it now, but they will if they want to stay competitive." He explained that law firms are starting to understand the edge in speed that computers provide, and are beginning to use modems for not only sending and receiving transcripts, but also for exchanging evidence and briefs with both mainframes and personal computers.

The way CAT works is that court reporters strike keys on a stenograph machine that either generates a paper tape with symbols corresponding to English or produces the paper tape and an electric cassette tape. The paper tape is optically scanned by a computer developed by Xscribe Corporation in La Jolla, or the electronic cassette is fed into a computer manufactured by BaronData Systems in San Leandro.

Both systems provide the same service, which is to translate the reporter's symbols into English and make the transcripts accessible on computer monitors so that editing and correcting can be done swiftly. The computer holds a dictionary of 30,000 to 70,000 words that match the stenographic symbols. Symbols that the computer can't recognize or that don't have a corresponding word remain spelled stenographically. Reporters then use the paper tape to crosscheck for gaps or errors.

The finished documents are then turned into hard copy on high-speed printers and delivered to waiting lawyers and other interested parties. Depending on the volume of testimony, high speed printers and copiers can have collated transcripts available within a week, and in most cases on the same or the next day. Testimony also is available electronically on monitors in the courtroom and elsewhere, as fast as the reporter can record it.

Xscribe's optical scanner, introduced in 1978, eliminates the need for a modified stenograph machine to produce both paper and electronic tapes and has propelled the once small start-up company into earnings last year of $1 million on $10 million in sales. The system can translate as many as 750 pages an hour, and for court reporters who get paid per page, that's a phenomenal advance over typewriters.

The company sells it's single-user system, which comes with a Winchester disk with storage capacity of 10 million characters, for $14,900. It also offers a 20 megabyte system for $24,900, and a 35 megabyte network that accommodates up to eight reporters for $39,500. With the addition of a cassette drive, 50 reporters can access the computer at one time.

BaronData, which last year earned $1.3 million on $18 million in sales, sells both transcribing computers and stenographic transcriptors that weigh 12 pounds and employ a standard stenographic keyboard. The transcriber sells for $2,795, while the computer ranges from $13,900 to $39,000. "The difference," explains Suzanne Dotson, the company's product marketing manager, "is that the high end units can perform more translating, editing and printing functions simultaneously, and have more storage capacity than the low end units."

She added that BaronData has sold more than 1,200 computers and 5,500 transcribers, and that the market is expanding. "Only a third of the court reporters are using computers," she said, "and another third is ready to use them. The resistant third is an older group who are gradually being replaced."

However, while it seems clear that CAT systems eventually will be adopted by most, if not all court reporters, those who don't soon make the switch won't necessarily be out of business. "Computers allow reporters to earn a lot more money than before," observed a reporting student being trained on a CAT system. "But there's so much litigation that reporters can work regardless of whether or not they know how to use the new equipment." □

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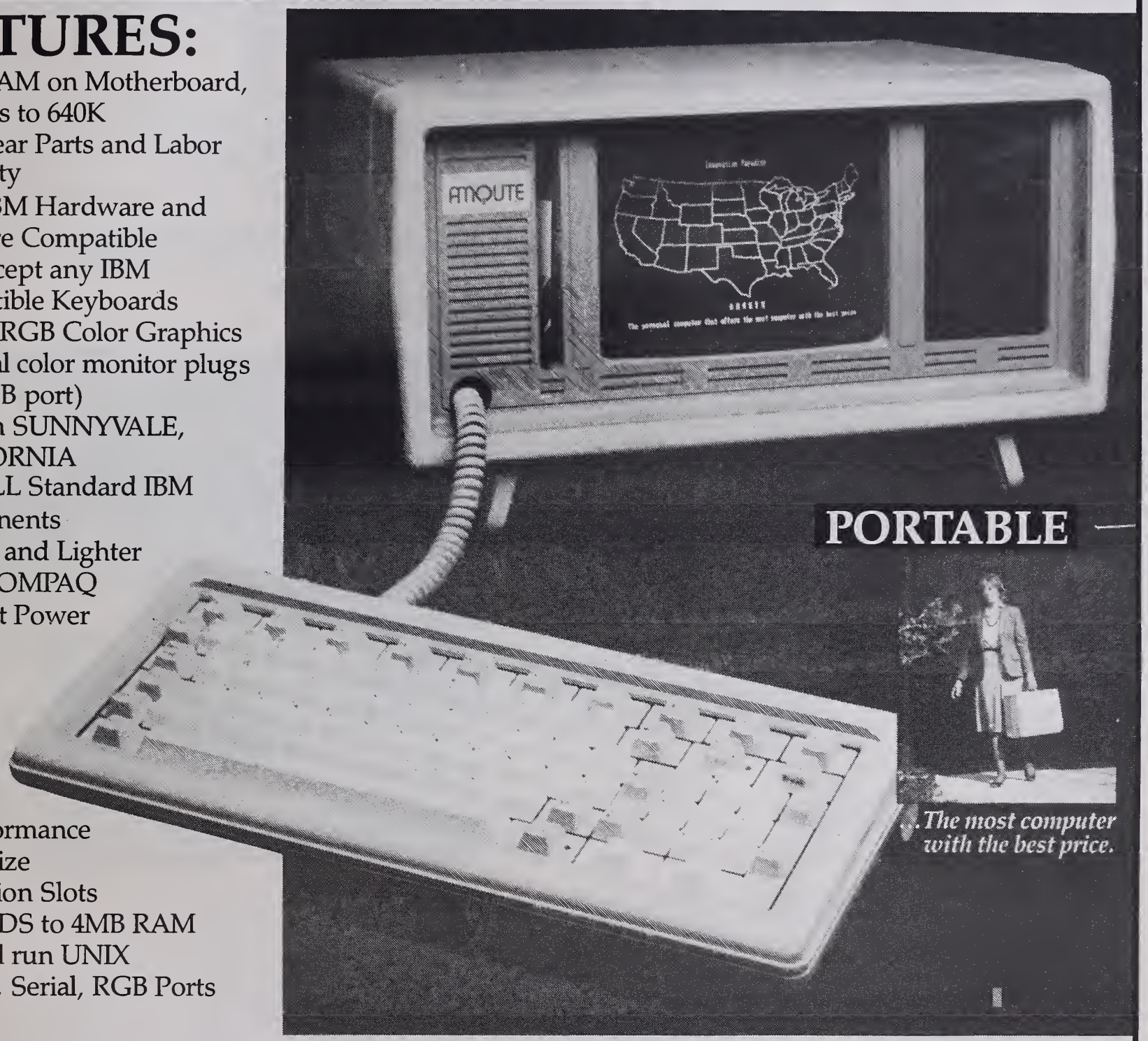

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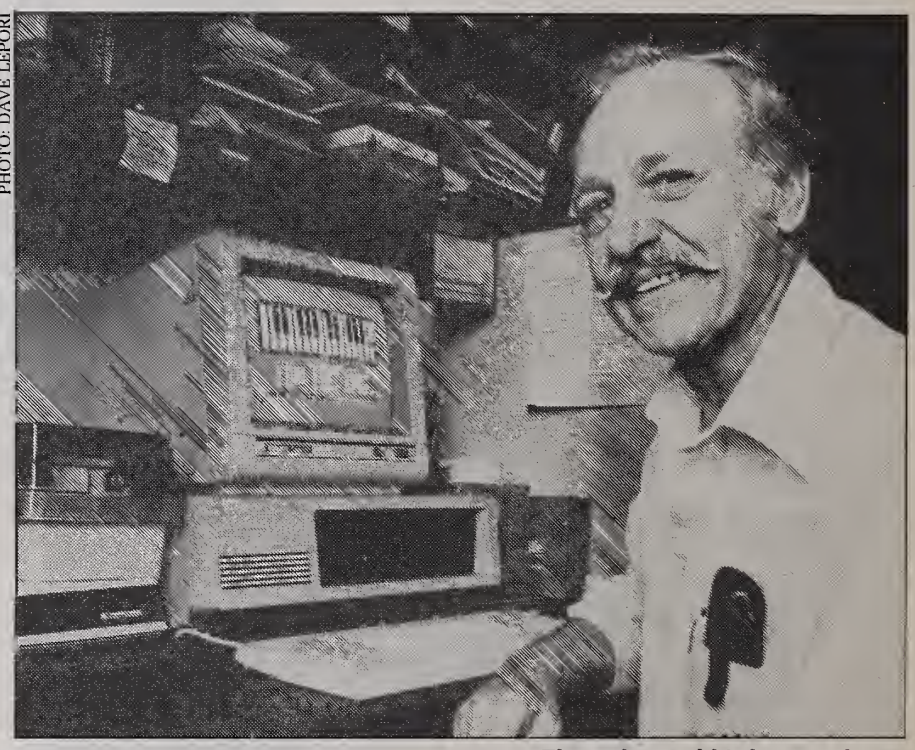

The author and his homemade XT.

You may have seen ads for IBM PCs and XTs for as little as $1500 or so. You may have gone running down to buy one. Surprise!! You would find that there would be just a few other things that you'd have to buy in order to have an operating system. Things like controller boards, floppy disk drives, printer boards, cables, and a monitor. Even after all this, you still wouldn't be able to operate the computer until you bought the PC-DOS operating software. For a decently configured PC it could cost up to $3000. For an XT, up to $4500.

You can assemble a PC or PC-XT compatible for less than half of what an IBM would cost. Even if you're the biggest klutz in the world, you can still do it. If I could do it, anyone can.

I have only had a computer for about three years. I had been trying to write a book for several years. I am not the best typist in the world. I would type a page, then find that I had left something out. So I would do it over and make several typing errors. I used gallons of white correction fluid. I finally decided the only way I would ever finish the book would be with a computer.

I bought several computer books and subscribed to dozens of computer magazines in order to learn as much as I could about computers. I also visited all the computer shows. Just before closing time at one of the shows, a Morrow dealer offered a $1900 system for $1600. In addition, they threw in about $2000 worth of software to go with it.

I really wanted an IBM. But an equivalent IBM was selling for about twice that much and they would not even give you the operating DOS software. So I bought the Morrow CP/M machine. At that time CP/M had not yet become a dirty word. In fact, it was the leading operating system.

I was very happy with my little Morrow. The things you can do with a word processor like *WordStar* is amazing. Before, it would sometimes take me hours to turn out a sheet with just a minimum of errors and type overs. With the computer, I could turn out a perfect page in just a few minutes. And it was so easy to go back and add, change or re-arrange any of it.

But my little Morrow only had two single-sided 200K floppies. It is amazing how quickly you can fill up a 200K disk. I am not the most organized person in the world. I was constantly misplacing disks and I often spent more time looking for a certain disk than I did working at my computer. I finally decided that I needed a computer with a hard disk. Besides, every time I went to a computer show I would see tons of goodies for the IBM and compatibles, but almost nothing for CP/M machines.

I still could not afford to buy an IBM. So I checked out several of the compatibles and do-it-yourself kits. At first I was quite skeptical as to the compatibility of the machines, and I was sure that I would not be able to build one myself. But I saw several demonstrations of the machines running things like *Lotus 1-2-3*, *dBase III* and other programs which convinced me that they were compatible. I talked to some people who had assembled their own, and they assured me that it was a snap.

I went to a local computer show and looked over several of the kits that were on display. One of the beauties of these things is that the parts are all interchangeable with IBM and each other. It's like buying a Ford and being able to use Cadillac, Chrysler or Chevrolet parts on it. So I shopped around and bought a hinged case and mother board with 256K at one place, a 130 watt power supply and two half-height floppy disk drives with a controller board at another booth. I then bought a 25-megabyte hard disk with a controller board. I also bought some interconnect cables and a keyboard. Later I bought a Taxan 420 high resolution

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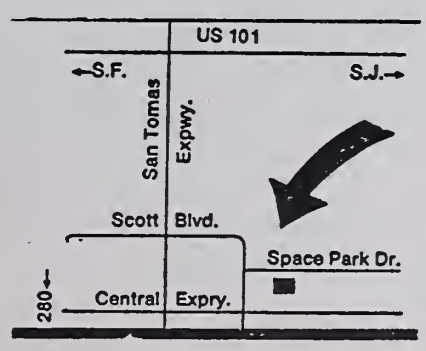

color monitor and a Paradise multifunction board with 384K of memory.

I brought all the parts home and began to assemble them. The mother board sits on stand-offs and is attached with screws to the case. Four screws are used to attach the power supply. The floppies and the hard disk drive are attached to a bracket and bolted to the case. The power supply has cables which plug into the mother board and to the disk drives. One of my biggest problems was getting the bezel on the hard disk drive to line up properly on the front of the case. I finally used some rubber cement and glued it in place.

Within two hours I had my system up and running. I had a color monitor, two floppies, a 2-megabyte hard disk, 640K of memory and a multifunction board. My system looked exactly like an IBM PC-XT but actually had greater performance capabilities. Except that mine did not have the IBM label on the front. But mine cost less than $2000. An equivalent IBM PC-XT would have cost between $4500 and $5000.

Actually it would have been possible to have built this system for even less money. Most of these boards and components are manufactured in the Orient and imported into this country. Many of the importers then assemble the components into systems. But most of them will sell you all or any part of a system that you may want. So if you have the time and the expertise, you can buy the bare motherboard or any of the other boards for quite a bit less than the assembled and tested units. The motherboard is almost identical to the IBM motherboard. It uses identical sockets, components and ICs. So you can buy the connectors and components and solder them in yourself. But there are a thousand and one ways to make small errors when doing assembly at this level. Unless you have some very sophisticated equipment, it might be almost impossible to find such errors. I would strongly suggest that you buy units that have already been assembled, tested and ready to plug in. Then if something goes wrong, you can take it back to the vendor.

Although the majority of these vendors and suppliers are very small companies, most of them will give you a 90-day warranty. If they are going to fail, most electronic components will fail within the first 100 hours or so of use. So when you buy a new piece of hardware, it is a good idea to turn it on and let it run or burn-in for about a week.

My Morrow system had a serial RS232 printer port, but IBM has standardized on the parallel system. Because of this the majority of printers on the market are now parallel. This is one reason I bought the Paradise five function board with its serial output. But in order for my printer to work, I must use the DOS Mode command to re-direct the output. So I made it a part of my Autoexec.bat file and it is run automatically every time I turn on my machine.

My Autoexec.bat does some other very useful things. Here is a listing:

```
Mode Coml:1200,N,8,1,P
Mode LPT1:=Coml
CLSET SYSTEM
DATE
TIME
ECHO ON
PATH C:\
PROMPT $e[s$e[1;2HToday
  Is $d$e[1;
  40HCurrent directory =
  $p$e[u$e[Om$n$g
CLS
```

This program sets my printer with the Mode Command, then displays the date and time. The Paradise board has a battery operated clock which keeps track of the time and the date, even when the computer is turned off.

The PROMPT line above with all the funny looking symbols puts a line at the top of the screen to let you know which directory or subdirectory you are using at any time.

In order to get this into your system, at the A> or C> type COPY CON AUTOEXEC.BAT <return> then type in the program above. At the end, hit F6 or Control-Z, which ends the program and saves it. From then on every time you turn your system on it will run automatically.

One of the main things that make these computers compatible with the IBM is their Basic Input/Output System (BIOS). This system is encoded on a 28 pin ROM chip. With an EPROM burner it is possible to make an exact copy of the IBM chip, but this violates the copyright laws and tends to make IBM a bit unhappy. A couple of years ago, IBM, and also Apple, sued a few companies that had developed BIOS systems that were very close to theirs. This forced the companies to re-write their systems and forced some of them into bankruptcy.

The BIOS used by the kit companies seems to be at least 99% compatible with IBM.

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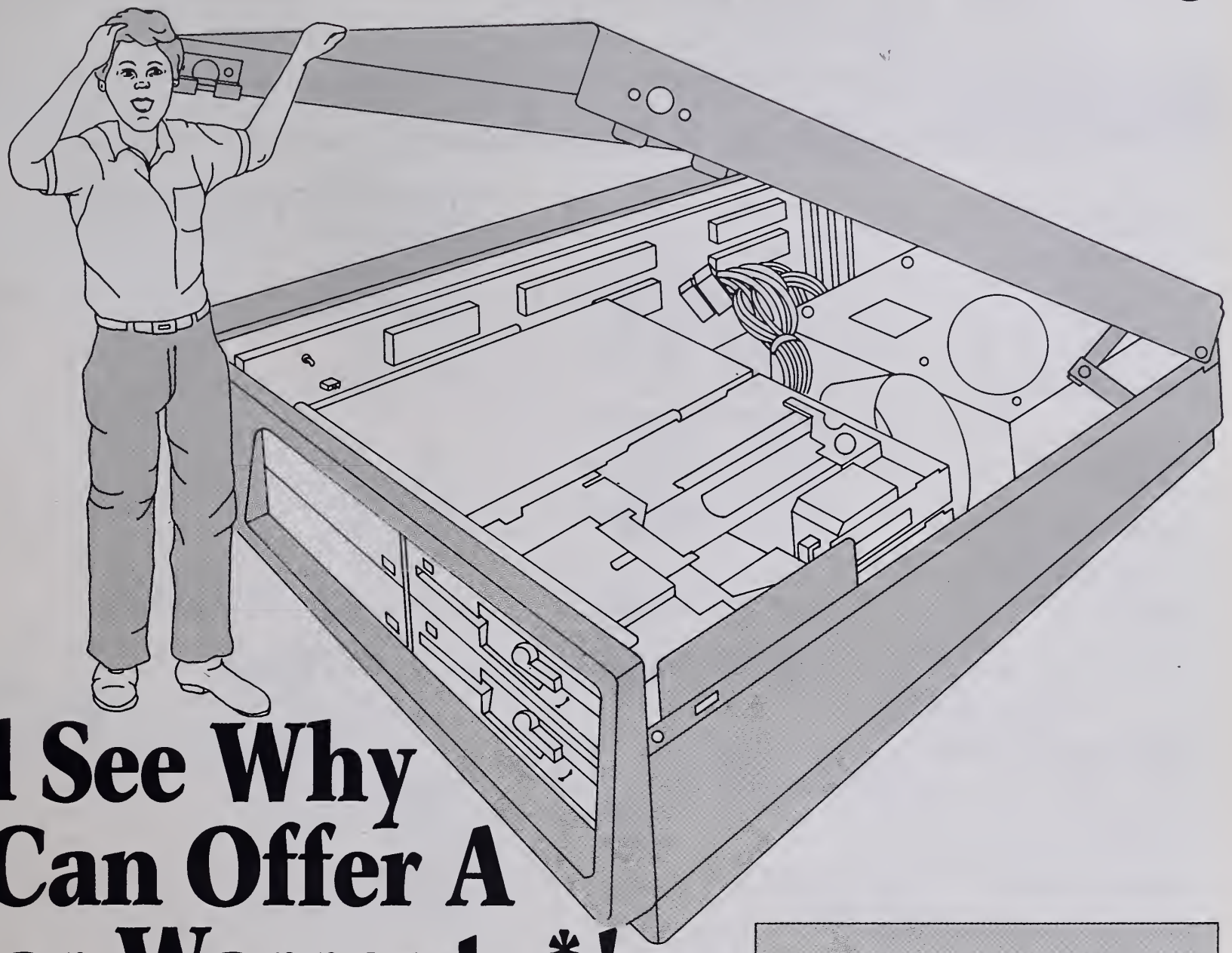

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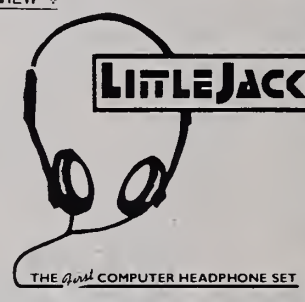

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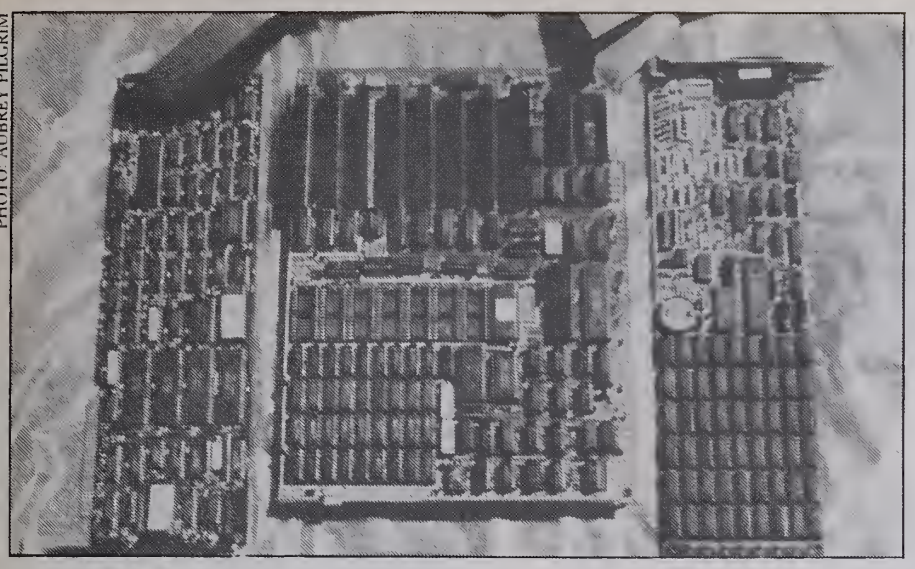

You can buy the connectors and the components and solder them in yourself. But there are a thousand and one ways to make small errors while doing assembly at this level. I would strongly suggest that you buy units that have already been assembled and tested.

You must have the Disk Operating Software (DOS) in order to operate your computer. It can use either the IBM PC-DOS or MS-DOS 2.0, 2.1 or 3.0. You may have a few problems with some programs if you use DOS 3.0. The DOS 3.0 is not that much better than 2.1 so I would recommend 2.1.

You can buy DOS 2.1 for about $60.00. But I suspect that many illegal DOS copies are made by the people who buy or build these systems. Many have friends who have IBM systems, or they have access to IBMs at work.

IBM installs their version of BASIC as BASICA in ROM chips on the motherboard. But Microsoft sells GW-BASIC, equivalent to the IBM BASICA, on a disk.

You will also need a good word processor. *WordStar* was bundled with my Morrow. I have learned to use it and like it. It is the most popular of all the word processors. You will also need a data base program like *dBase II* or *dBase III*, and a spreadsheet like *Supercalc* or *Lotus 1-2-3*.

More than anything else, the Xerox Copy software was responsible for my decision to move up to the compatible PC-XT. I had typed my book, several articles, my tax records and a lot of other data onto disks in the Morrow CP/M format. I was locked in until I bought the XENO-COPY software. It runs on IBM and compatibles and can read, copy, format and write to over one hundred different disk and computer formats. With this software I can easily copy my Morrow disks to my PC system. I have a brother-in-law who has a Kaypro and we often exchange data and disks. The program was developed by Fred Cisin of Berkeley and is distributed by Vertex Systems at 6022 W. Pico Blvd., Los Angeles, CA 90035.

These kits have made it possible for almost anyone to own a powerful and versatile computer. If you don't have a lot of money, you can look for bargains and buy a little at a time. These kits would be ideal for schools that don't have too much money to spend on their computer classes. The students could assemble them and learn while at the same time saving the school money.

These computers can also benefit small businesses, doctors, lawyers and anyone else who has a need for a good computer system.

We are including a partial list of distributors with their address and telephone number. Prices are falling like autumn leaves. Before you buy a system, you might shop around and call for the latest prices. You might even be able to haggle a bit with them.

Computrade, Sabet and some of the other companies listed below are already offering an IBM PC-AT unit. You can bet that there will be many others offering this powerful computer before very long. □

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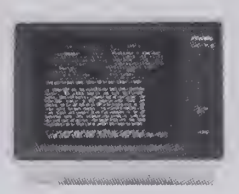

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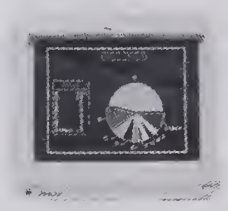

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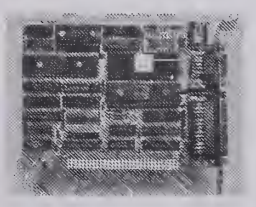

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Overview Of Preschool Computing

By Ute Elisabeth Van Nuys

A small, red gondola moves along the canals of the city. Its mission: to pick up various white ducks marching toward the water and transport them safely to a sunny beach. But there are problems ahead. A mischievous hippo lurks beneath the water, waiting to capsize the gondola and send its occupants swimming off to unknown shores. The hippo's hiding place is given away by tiny white bubbles of air, and a careful captain must keep track of the hippo's changing position while, at the same time, carefully gauging which ducks are likely to show up at their launch sites next. It's a tricky situation — especially for a captain who's only three years old.

The game is *Ducks Ahoy* and the captain, this time, is my son Christopher. Seated in his old high chair, an oversized joystick on his lap, Christopher swiftly guides his gondola along the canals like an old pro. He's an expert at this game, having ferried countless ducks to the safety of their beach. But each new game requires planning, speed, and exquisite timing. That pesky hippo is lurking somewhere in the vicinity and other ducks are marching relentlessly toward the water. With the gondola loaded to its two-duck capacity, it's time to head for the beach, full speed ahead.

In *Ducks Ahoy*, toddlers guide a gondola on a duck-rescue mission.

PHOTO: GERALD L. MOORE

If this sounds like the popular stereotype of a glassy-eyed toddler plugged into the newest electronic drug, guess again. Christopher is having fun, no doubt about it. For him, as well as for thousands of other preschoolers, the computer offers a chance to play and learn in an intriguing, non-competitive, and infinitely patient environment. But the computer is only a part of his world. Trikes and balls, puzzles and trucks, crayons and play-doh, books and blocks, and all the other paraphernalia of early childhood have their place too. And their well-worn appearance is a sign of frequent use. In today's terms, Christopher has it all. He's a thoroughly modern child, living in a world of mind-boggling technology and taking it all in stride.

Compared to many adults, kids have an enviable attitude toward computers. They aren't afraid of them, they're not awed by them, and they go at the keyboard with an enthusiasm that can make us cringe. Maybe they don't know how serious computers are. Maybe they don't know how much computers cost. Whatever the reason, kids take to computers like ducks to water, convinced that there is a toy just made for them.

Thousands and thousands of families have discovered computers. They've taken them home and set them up in their dens or living rooms or kitchens, and they're starting to use them. Now, as it turns out, a lot of these families also contain small children. The little kids see their mothers, fathers, older brothers and sisters sitting in front of the computer, having fun. Naturally, they want to get in on the action too.

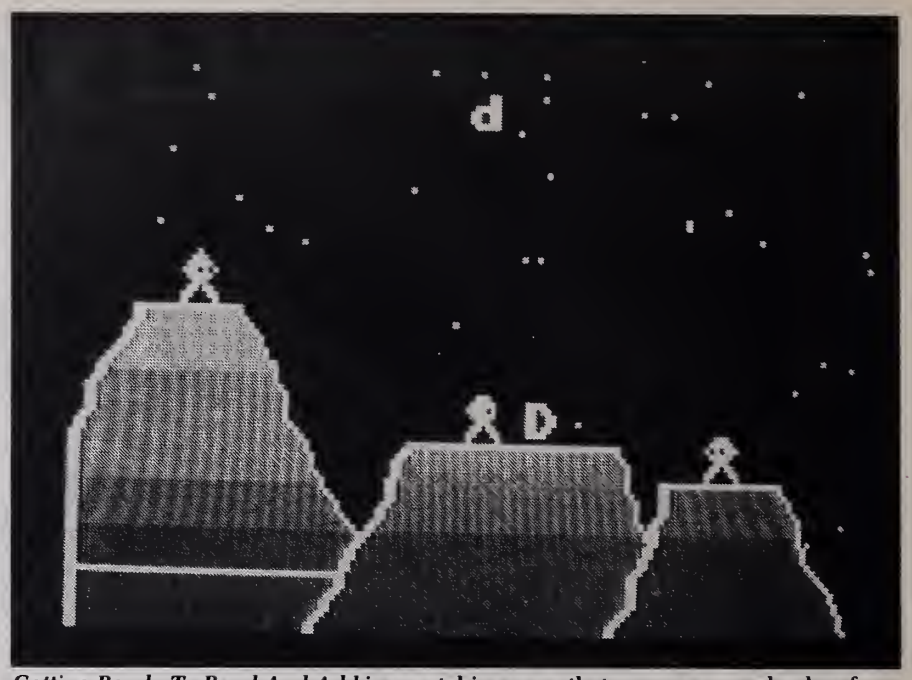
Software producers are aware of this, and they've responded by unleashing a whole range of software programs designed just for preschoolers. Some of the earliest releases were pretty bad, being little more than electronic flashcards. And at first, parents didn't have many programs to choose from. But that picture has changed. There is a great deal of software available now, and more is coming every day. True, some programs are still unbelievably dull, offering little in the way of education or entertainment. But good software programs are available as well and, armed with those, parents can now prepare an environment that offers challenge, creativity, learning and fun for even the youngest child.

Can toddlers use computers? The answer is a resounding "Yes." Toddlers can use computers, do use them, and tend to enjoy the experience thoroughly. Tots barely out of diapers can be taught to restrain their physical enthusiasm somewhat and learn to treat a computer and its accessories gently. It's up to parents to show a child how to turn the system on, how to handle and insert cartridges and disks, how to manage keyboard and joysticks, and also to keep snacks and other stickies away from the computer and avoid pulling wires and cables out. Kids learn all this very easily, as long as they aren't overwhelmed by too much at one time. Even three-year-olds can be amazingly responsible — once they know how.

Given that toddlers can use computers, there is still the question of why they should. Computers, with their color, sound, and graphics, are natural attention grabbers. It's not surprising that children are drawn to them. Yet there are people who still question whether preschoolers can really derive any benefit from using computers at all. There is, they say, no evidence that early computing teaches kids anything. Another concern is that too much time spent at a keyboard will isolate children, depriving them of social contact with adults and with other kids. Some educators worry that parents may simply be pushing kids into early computing out of their own anxiety, fearing that if kids don't pick up computing skills now, they'll be left behind.

These are legitimate questions stemming from a genuine concern for children. And it would be a mistake to think that computers can't be misused. Using the computer as a convenient babysitter, to keep children out from underfoot, is probably not a good idea. Pushing kids to perform at the keyboard is a downright bad idea. Interest and motivation are powerful forces for learning, and they're usually the first things to go when pressure is applied. But social interaction? Social interaction tends to increase whenever kids and computers find themselves in the same room. Preschool teachers who are using microcomputers in their classrooms find that computers actually encourage social interaction among the children. Kids enjoy using programs together, advising each other, and cheering each other on. For the child who's an only, there is always a parent or a friend who can be roped in as an impromptu admirer. Computers are fun, kids seem to say, but fun can be more fun when it's shared with a friend.

As for the question of what a toddler can learn from using a computer, the answer is, "Plenty!" Number recognition, letter recognition, shape and color recognition, as well as an understanding of concepts such as same and different, large and small, over and under, right and left, are only some of the concepts a child can learn. But, of course, there's a catch. Learning doesn't happen in a vacuum. The environment that parents create and maintain probably has more to do with the acquisition of cognitive skills than anything else. Sitting down at the computer, with your child on your lap, talking about what's on the screen, how the program works, and just enjoying a shared activity together, will do more to enhance learning, and the desire



Getting Ready To Read And Add **is a matching game that prepares preschoolers for reading and math activity.**

Armed with good software programs, parents can now prepare an environment that offers challenge, creativity, learning and fun for even the youngest child.

to learn, than any software program, no matter how excellent, can deliver by itself.

It is the quality and frequency of a child's interchanges with adults that largely determines cognitive development. That's still one of the best-kept secrets around. And it's a secret the best software developers understand. That's why they encourage parents to actively involve themselves with their children's computing experiences, to have fun with their children and to learn right along with them. That's why, in addition to well thought-out programs, a number of developers offer suggestions for other activities and games which will expand a child's horizons and encourage further parent-child interaction. Best yet, many of the suggested activities take a child beyond the reliance on just one medium, one form of expression. By extending what is learned at the computer to books, creative projects and physical activities, they encourage a true integration of learning with many sensory experiences. It's a multi-faceted approach, and it works.

How do parents know which programs are right for their youngster? The only answer is to preview programs before you buy them. Look for programs that are interesting and enjoyable, programs that offer bright graphics and pleasing sounds. Keep in mind that a program that's too complicated or difficult to use will only result in frustration. Avoid on-screen clutter and opt for software that is clear, understandable, and compatible with your value system. Check on how a program handles errors. Error and exploration are a natural part of the learning process, and good programs take this into account.

As the overall quality of preschool software continues to improve, parents and children can look forward to newer and more entertaining programs. But the current crop has plenty of winners too. Here are just a few of them.

CBS Software offers a number of delightful programs for preschoolers. Our favorites are *Sea Horse Hide 'N Seek* and *Ducks Ahoy*. Developed by Joyce Hakansson Associates, these programs show the same concern for quality and standards of excellence we've come to expect from this gifted development team. Anyone who's searching for the very best in creative, imaginative, wholesome software for children should take a look at these programs. They're very, very good.

In *Sea Horse Hide 'N Seek*, your child guides a timid sea horse through a coral reef populated by fantastic lagoon fish. As in real life, the sea horse uses camouflage to blend in with its surroundings, escape from the lagoon fish, and make its way home to a sunken ship. This is a charming game, full of color and music, and children delight in steering their small charge home, all the while learning to estimate size, to anticipate, plan, and carry out various strategies for eluding those strange fish that threaten to frighten the little sea horse away. *Sea Horse Hide 'N Seek* comes with an activity book that explains the concept of camouflage and discusses the ways in which different creatures use camouflage for protection. A poster is also included. *Sea Horse Hide 'N Seek* is designed for children 3 to 6 and can be played by one or two players. This game is available on cartridge for Atari and Commodore 64.

Ducks Ahoy is another delightful

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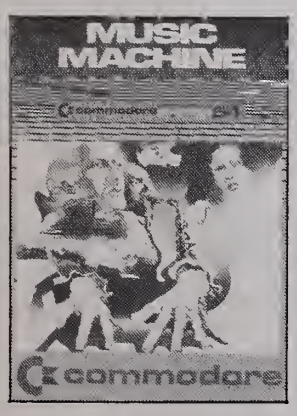

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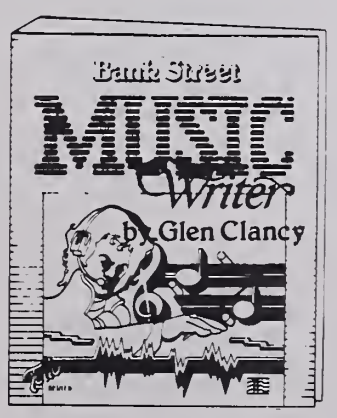

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program that encourages prediction, strategic planning, and timing, as children pilot bright red gondolas in search of those happy-go-lucky ducks. This subtle learning game incorporates wit, charm, and an unerring sense of what appeals to children. It's been a long-time favorite at our house. Even older children and adults have trouble resisting it. *Ducks Ahoy* is available on cartridge and disk for Commodore 64, on cartridge for Atari, and is designed for ages 3 – 6.

Spinnaker Software also has some top-notch programs for the preschool set. Among them are *Kinder Comp* (ages 3 to 8), *Alf In The Color Caves* (ages 3 to 6), and *Delta Drawing* (4 to adult).

Kinder Comp reinforces keyboard skills as well as sequence, upper and lower case letters, and pattern recognition. As if that weren't enough, this program also offers kids a chance to draw and to practice writing their own names. Direct learning activities are best done with an adult on hand, but kids may want to go it alone occasionally. *Kinder Comp* has several surprises in store for youngsters. Where else can children watch their very own names turn into visual extravaganzas? The Draw program is particularly good, enabling even very young children to create their own colorful pictures. This software package is on disk for Apple, Atari, IBM, and Commodore 64, as well as on cartridge for Atari and Commodore 64.

Alf In The Color Caves is ideally suited to serve as a child's introduction to the delights a computer can offer. Ease of use, brilliant color, lively music, and an endearing character make this game a "must" in any child's software library. Our children have taken *Alf* to their hearts and they've learned coordination, cause and effect relationships, timing, and control from guiding "Alfie" through his tunnels and caves. The little fellow's victory dance brims with joy and irrepressible spirits. An excellent activity book enhances and extends the fun. This one can be found on cartridge for Atari and Commodore 64.

Delta Drawing is a creative, open-ended program the entire family can use. This is a powerful piece of software that allows children (and others) to explore the computer's potential through their own art work. And art has never been so easy or so satisfying. But there's more to this program than meets a child's eye. Kids may think they're only drawing pictures, but while they're drawing they are actually creating programs. If your first look at *Delta Drawing* reminds you of LOGO, you're not alone. Single-key commands move your wedge-shaped cursor around the screen. Push D (for draw) and the cursor marches forward, leaving a line in its wake. A simple press of the R key sends the cursor off to the right, and pushing L turns it to the left. To make the whole process even easier for our toddlers, I printed a big R and L in red marker on pieces of cardboard. I then taped these "hints" to the right and left of our computer. This allowed our boys to look up, see which direction they wanted to go in, and press the appropriate key.

Delta Drawing is one program that spans all age groups successfully. Anyone can use it to form designs, from very simple triangles and squares to complex geometric tapestries. Even very young children can create their own fantastic shapes and fill them with color. Designs can be drawn, mirrored, colored, executed, edited, and saved. The learning here is in the doing, and the doing is always great fun. Do give *Delta Drawing* a try. You'll be impressed. You'll find it on cartridge for Atari and Commodore 64, as well as on disk for Apple and IBM PC.

Searching for a program that's just right for the tyke who's meeting a computer for the first time? Xerox Weekly Reader Family Software has the program for you. It's *Stickybear ABC*, a bright and perky introduction to the alphabet for preschool children.

We used this program like an electronic surprise box, letting our boys push the letters at random to call up various animated pictures. The kids loved "Sticky" and quickly learned which pictures came with each letter. As to the letters themselves, this program, with its large, extremely clear graphics, made learning easy. Both boys learned to recognize all their letters from *Stickybear ABC*, and they had fun doing it. It's an excellent "lap" program, with parents enjoying the wonderful graphics and sound as much as the kids do. Super easy to use, *Stickybear ABC* comes packaged with poster, stickers, and hardcover book to enhance learning fun.

For number recognition, counting, and simple addition and subtraction, there's *Stickybear Numbers*. Sporting the same outstanding graphics, *Stickybear Numbers* presents material in a visually appealing and intelligent way. Ease of use and error handling are excellent. The package comes with poster, stickers and hardcover book. This one appears on disk for Apple, Atari and Commodore 64.

Sierra On-Line has an excellent entry in the preschool category with its *Learning With Leeper*. It's meant for children ages 3 to 6, and it targets its age group well. Everything, from picture menu to four delightful learning games, is designed to intrigue children and give them a real sense of accomplishment. Parents need only introduce this program to their toddlers and then watch them go. Letter matching with hot air balloons, number recognition and counting with hungry, tail-wagging dogs, "painting" pictures with colors from an on-screen palette, and running a green frog and multi-colored caterpillar through a child-sized maze — *Learning With Leeper* offers children a superior program and hours of fun as well. Entertainment, learning, and variety — what more can parents ask for? This one is available on disk for Apple and on cartridge for Atari and Commodore 64, joystick required.

***Stickybear ABC* is a colorful introduction to the alphabet for children.**

Using the computer as a convenient babysitter, to keep children out from underfoot, is probably not a good idea. Pushing kids to perform at the keyboard is a downright bad idea.

For a more straightforward approach to pre-reading and pre-math activities, we turn to *Getting Ready To Read And Add*, an excellent entry from Sunburst Communications. Designed for preschoolers as well as for children in kindergarten or first grade, *Getting Ready To Read And Add* is well-organized, tightly structured, and educationally sound.

A series of six games is presented. Each game concentrates on matching objects, letters, or numbers. Children press any key to signal a correct match and bright, colorful graphics, animated sequences, and sound reward a right answer. This is not, however, a true game. It's a learning activity, and parents should be on hand to monitor progress. One of the outstanding features of *Getting Ready To Read And Add* is that parents have the opportunity to tailor the program's speed and contents to the ability of their child. A change option lets you speed up or slow down the rate at which objects are presented and even to enter letters and numbers in a sequence of your choice. This one is available on disk for Apple, Atari, Commodore 64, and IBM PC.

From Eric Software (1713 Tulare, Fresno, CA 93721) comes *The Learning Line*, a program for children ages 4 to 7. The menu is a clothesline, from which hang six pictorial representations of the games. There is the "Shirt Game," for example, which requires a child to match pieces of clothing. Other games include the "Cat Game" (match word to picture), the "Face Game" (match faces with different expressions), the "E Game" (match letters), the "10 Game" (match numbers), and the "Bouquet Game" (match similar objects).

Children will need just a little help getting started, but soon master most of the games by themselves. The nicest thing about *The Learning Line* is that there is no rush for the right answer. Youngsters can take their time to think about their response, and the program doesn't limit the number of tries a child can have. This is a patient, child-friendly program that provides learning and fun without pressure or negative feedback. A little monkey is on hand to beat drums and turn somersaults for his delighted audience. It is available for Apple and Commodore 64, and a joystick is recommended.

With a computer, kids don't merely sit and watch — they do. Whether it's a fast-paced adventure game, a fantasy world to explore, or simple drill and practice, computers give children all sorts of opportunities to play, to learn, and to create. Given appropriate software and a good dollop of parental attention, a computer can become one of a kid's best friends. □

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MasterCard Introduces Computer Credit Cards

Millions of Americans may soon be carrying computers in their pockets.

This month the credit card titan, MasterCard International Inc., will introduce to thousands of its customers a card that contains tiny microprocessors.

Called "smart cards," they will be distributed on a test basis in only two selected cities. If successful, these high-tech cards could replace the current magnetic strip card technology in less than five years.

MasterCard is taking the initiative and investing nearly half a million dollars in the experiment to find a new technology that can reduce dramatically the millions of dollars lost each year to credit fraud.

"Our losses have risen from $172,000 in 1979 to $19.7 million in 1983," said a MasterCard spokeswoman in a phone interview from its New York headquarters.

Industry experts say that nobody knows exactly how much is lost annually, but all agree that it runs into the hundreds of millions of dollars. According to one source, MasterCard alone was projecting losses of nearly $600 million by 1990 unless a new card system was devised.

The magnetic strip card — three tracks of encoded data that identify the user — has been an easy prey for the adept counterfeiter. Thousands of fake cards are in existence, even with the recent introduction of hard-to-reproduce holograms.

Smart cards are expected to change all that. Its proponents say that it will not only be difficult to produce the encoded chips, but expensive as well. Credit card thieves will also be at a disadvantage, they add, because of the formidable task of solving the secret code number that each customer will receive. And a stolen card in the hands of someone who does not know the proper code will electronically disable itself after three attempts.

The memory card from Micro Card Technologies will allow cashless transactions: the customer enters a secret identification number, the merchant keys in the purchase price, the customer verifies the purchase, and funds are transferred from one account to the other.

Further, the code number will be on the card and will not have to be transmitted to a central computer, as with the magnetic strip cards. This should greatly reduce the chance of a hacker breaking into the code.

The two cities that will participate in the smart card experiment are Columbia, Maryland and Palm Beach, Florida. At each site, approximately 50,000 cards will be distributed to MasterCard customers in conjunction with local banks. Also, 200 specialized terminals that can "read" the data on the cards will be installed at selected stores. The tests are scheduled to begin this month and last about a year.

With some variations, the cards will work like this: when a customer makes a purchase, he or she will punch into a keyboard their secret number at the checkout stand. Once the user is properly identified, the merchant will then punch the price of the purchase and the card user will approve it with the touch of a button.

The computerized cards will be able to store masses of data which will include credit history, purchase limits and records of all transactions. They should last, on the average, about a year, and can also be used as credit cards at regular outlets.

MasterCard is hoping that the above-mentioned capabilities will result in easier shopping for consumers and a reduction in the cost of handling data.

Specifically, customers will no longer have to wait for credit checks with the data already on the card. Checks won't have to be written; transactions will be updated with every purchase and amounts subtracted in a manner similar to a BART ticket.

In fact, smart cards may some day eliminate the bulge in many American wallets by containing the records of several credit and bank cards on one card.

Smart cards originated about eight years ago after the French government decided to sponsor a research program to facilitate electronic fund transfer (EFT's), and devise a better method than check writing as a way of payment.

To date, there are three French companies making "cartes à memoire," and they have proven to be a popular item where introduced. Some French public telephones, for example, now accept smart cards rather than coins.

Nevertheless, the French pioneers have been waiting for the results of recent test runs in three cities before deciding on a widespread distribution.

"Those trials were successful, and French banks will begin to issue

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three million cards later this year," said Paul Wittfeld, vice president of marketing for Micro Card Technologies Inc., a Dallas-based subsidiary of Bull Group, a French computer company that makes smart cards. "By 1987, France will have 12 million cards in circulation."

Micro Card Technologies will supply their French-designed cards to the Columbia area, while the Japanese corporation, Casio Microcard Corp., will equip Palm Beach.

This is the first test run for the Casio cards anywhere in the world. "There has been only a minimal usage of smart cards in Japan," said Kenji Rikuna, project manager for the Palm Beach project. "There is just not that much credit card fraud to warrant its use."

Both designs are similar in that they use encoded chips with a customer's secret number, which allows speedy verification of the user's identity. And both nation's engineers are working on other methods of identification to be placed on the chips, such as personal signatures and fingerprints.

Yet each claims that their design has a major advantage over the other that will someday make it the accepted version. Experts agree that while both designs will be around in the initial years, one will have to win out as the standardized architecture for the technology to be welcomed on an international level.

Industry executives predict that bankers will have little choice but to follow suit if the credit card industry, led by MasterCard, replaces all of its magnetic strip cards with smart cards.

"We can store more than eight times the memory than the card made by Bull," said Rikuna of Casio's two-chip card.

"The dual chip is not the answer," said Arlen Lessen, president of the New York-based Smart Card International Inc., a consulting firm for the French technology. "The French originally used it and found that it was more susceptible to a counterfeiter's probe than the mono-chip."

While the Japanese and French companies fight it out for the lucrative U.S. credit card market — sources say about 700 million card users spend approximately $40 billion annually — they may have a bigger battle winning over the reluctant banking industry.

"They are basically conservative and have invested heavily in the magnetic strip technology," said Lessen. "Also, they have not suffered enough fraud as yet to panic."

The conversion to smart cards would indeed be expensive. In quantities of a million, smart cards will cost between five and ten dollars each. Card terminals will run about $1000 each.

Yet, industry executives predict that bankers will have little choice if the credit card industry led by MasterCard replaces all of its magnetic strip cards with smart cards.

"Once MasterCard adopts it, Visa, Diner's Card and others will surely follow," said Rikuna.

How soon that will happen will depend not only on the results of the Columbia and Palm Beach experiments but on the testings of Arthur D. Little & Company. The Cambridge, Massachusetts-based company was recently hired by MasterCard to conduct tests on how the chips will hold up in the wallet environment.

"We are doing a lot of work in this area and the tests might last up to two years," said Dennis Jefferies, the engineer in charge of the durability study. Jefferies indicated that the testing might include such beverages as coffee and Coca-Cola.

"Coke syrup has proven in other tests that we have conducted to really stick up mechanisms," he said. "It also has a wonderfully aggressive corrosive power."

Realistically, industry executives are looking to the end of the 1980's as the beginning of the smart card era.

"There is too much of an infrastructure of existing technology for it to happen anytime soon," said Lessen. "But once it starts, it will move rapidly." □

Laser Card Attracts Worldwide Attention

MOUNTAIN VIEW — A novel technology invented by a Mountain View company may change the way future computers are made, according to several industry experts.

The invention — a laser optic memory card with a two-megabyte capability — can store up to 800 pages of English text on a piece of plastic the size of a credit card. Industry-watchers are predicting that this remarkable storage capacity, plus the fact that the recorded information is nonerasable and relatively secure from potential hackers, will make the floppy disk obsolete and compel high-tech companies to reevaluate the way they currently design computers.

"There is a high level of interest in laser cards for the next generation of products," said Michael Tyler, president of CSP International, a New York-based telecommunications consulting firm.

The laser card was created by the Drexler Technology Corporation, an optical data products company which supplies photomasks, photoplates and photochemicals to the semiconductor industry. The card was invented by the firm's president, Jerome Drexler.

Laser optics may also replace the magnetic strip technology used currently in credit cards and give smart card manufacturers a competitive run for their money (see accompanying article). Magnetic cards can store roughly 45 words, or 1,700 bits of information compared with the laser card's 400,000 word capability, or 16 million bits of recorded data. That is the equivalent of 500 words, single spaced, on each page.

The Drexon Laser card can store 1 megabyte (narrow strip card) or 2 megabytes (wide strip card) of data. Read-only and read/write versions are available.

The Drexler card's recording system is based on a laser beam that is used both to burn digital information onto the card and to "read" that data by scanning the surface. It is different from smart cards in that there is no built-in microprocessor.

The technology is being taken so seriously by the high-tech community that 20 of the most well-known computer firms in the world have signed licensing agreements with the Mountain View firm. This gives them the right — after paying a $700,000 fee — to make equipment to use with laser cards. It does not, however, allow them to manufacture the cards.

The licensees include Honeywell, Wang and NCR of the United States; Fujitsu, Canon, Toshiba and Sharp of Japan; Ericsson Information Systems of Sweden and Ciba-Geigy/Ilford of Switzerland and the United Kingdom.

These international giants appear to be most attracted by the card's potential for new applications. Its memory capacity, for example, could allow a user to store entire books, software programs, data bases, video games, ticketing systems, office and personal records, catalogues and manuals. For more mundane usage, an individual could carry his or her driver's license, insurance and registration and entire automobile maintenance record on a single card.

The cards could also be used to make cashless purchases in a vending machine, with the value of the cards reduced after each purchase. Or they could be used for electronic fund transfers in automatic teller machines, or as a credit card.

Laser card proponents are hoping that credit card manufacturers, who lose millions of dollars a year in fraud, will be impressed by its strong security system. First, the sealed stripe across the card cannot be removed without destroying the data and invalidating the card. Second, the card can contain data encryption coding as well as a digitized signature, picture, voice, fingerprint, or personal identification to prevent unauthorized access.

Drexler first announced the laser

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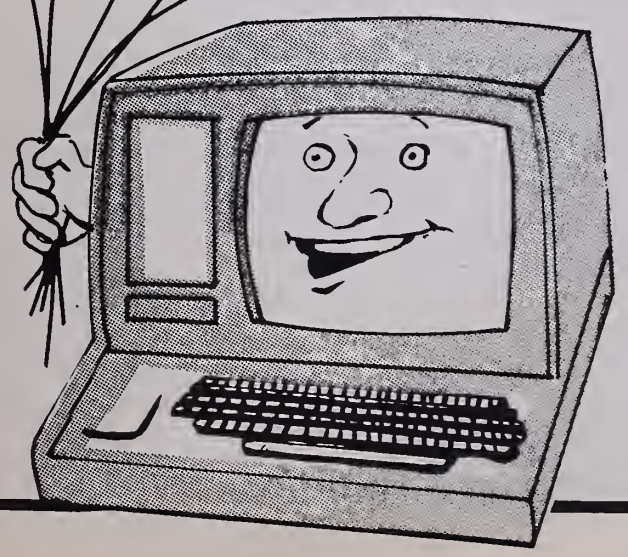

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An individual could carry a driver's license, insurance and registration, and entire automobile maintenance records on a single card. The cards could also be used to make cashless purchases at vending machines, with the value of the cards reduced after each purchase.

card in 1981 at an international marketing convention in Monte Carlo. A year later, Toshiba bought the first licensing agreement. During the past four years, Drexler has spent about $14 million in research and development funding to perfect the technology.

Yet to date neither the card nor equipment that can "read" its data has been distributed to the public. And its creators don't appear to be anxious to rush the product to market.

"It's not a quick kind of thing," said Drexler spokeswoman Johanna Protsik. "Remember, we are talking about the birth of an industry."

But the introduction of the laser card may be just around the corner. At the end of July, Drexler announced that the company had received a $3.5 million contract from Health Management Systems Inc. (HMS), a subsidiary of Blue Cross and Blue Shield of Maryland that was created exclusively to develop the laser card concept for medical use. At the same time, they announced that Canon will supply the medical plan with 60,000 laser memory card reader/writers. This will be the laser card's first commercial application.

Blue Cross-Blue Shield will test the cards beginning in October among 35,000 selected subscribers for about six months. HMS will call it the LifeCard and employ it to record and store an individual subscriber's medical, health and insurance records as well as such data as x-ray and electrocardiogram results, operations, names of physicians, and a list of medicines being taken. If this landmark test-run proves successful, the cards will be distributed to the health plan's 1.6 million subscribers by the end of this year and to its nationwide membership of 80 million by the end of 1987.

Blue Cross-Blue Shield has spent $2 million on laser card development and produced the software that will run the programs. Hospital executives are hoping that the LifeCard will improve health care by giving the hospital instant access to each subscriber's personal medical history. This, they say, will be most important when cardholders are unable to speak for themselves.

"If a person is unconscious, he can't tell the medical personnel that he is allergic to penicillin," said Nick Greaves, vice president of public affairs for Blue Cross-Blue Shield of Maryland. Greaves said that card readers will be set up in operating rooms and will be installed later in ambulances as well.

HMS management is hoping that the card will also speed up the hospital admitting process, assist in diagnosing problems and help the elderly who take various medicines and see several doctors to avoid harmful interactions. "There have been far too many cases of adverse reactions for the elderly. The card will alert each doctor which prescriptions are being taken," said Greaves.

Yet, despite these apparent benefits, the laser card will not be welcomed by the banking industry. Bankers will be reluctant to change to laser cards for the same reasons that they are skeptical about smart cards — heavy investment in the current magnetic strip system and the expense of the new technology. Laser cards will cost $1.50 each in volumes of 100,000. A reader will cost about $200, while a reader/writer will cost between $500 and $1,000.

"Bankers will probably study it while it's being used by somebody else," said Protsik. "You have to keep in mind that it took them 10 years to adopt the magnetic strip, and look how omnipresent that is today."

And as with smart cards, the laser card is being tested vigorously to see how well it holds up in the wallet environment. According to Protsik, Drexler has devised a machine whose sole purpose is to bend the card all day. "We have found that it can withstand up to 100,000 flexes before breaking," she said. This ruggedness, she adds, is due to the use of a material called Lexan, one of the main components of bullet-proof glass.

The Drexler Corp. is so sure of its product's potential that it is gearing up to produce 25 million cards per year and to open a second plant in Japan by 1988.

The company also anticipates that the current two-megabyte card with its 800-page capability is only the beginning. In the years to come, the card's capacity will be increased to five, ten and even 20 megabytes. The latter card will be able to store roughly 10 James Michener novels. ☐

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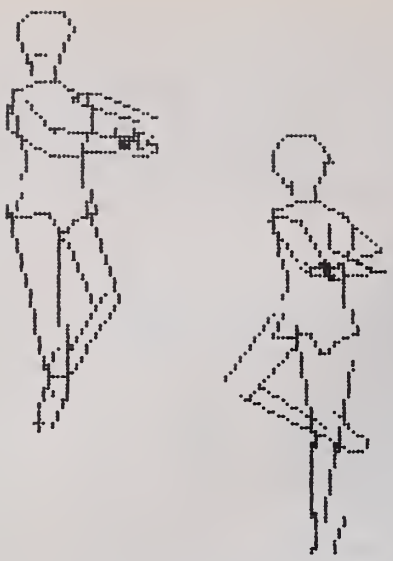


New Choreographer's Tool: Dance On Microcomputers

By Tom Ulrich

Few forms of art are as fleeting as dance. Choreographers and dancers describe it as an illiterate art. Without a dance score, there is no lasting record for most of the world's classical and modern dance repertoire.

Fewer than 300 classical ballets and modern dances are preserved from cultural extinction through dance notation. Some choreographers have tried to create a formal notation system for dance like the one composers use for music, but none has matched the accuracy and the expressivity of a musical score.

Dance has depended upon an oral history to preserve dances from extinction. If a contemporary ballet company wants to stage *Romeo And Juliet*, the word goes out to the handful of dancers who witnessed an early performance. In the absence of these eye-witnesses, the choreographer relies on the limited "vocabulary" of steps that make up classical ballet to reconstruct *Romeo And Juliet*.

Modern dance, with its unrestricted "vocabulary" of steps, relies entirely on the collective memory of the dancers. The captain of a modern dance company instructs the company in the repertoire created by its founding choreographer. Without a useful dance notation system, when the choreographer dies and the dance troupe disbands, the carefully cultivated repertoire faces extinction.

Filming a performance for the historical record has problems, as Teri Mason, Vice President of Mirage Graphics and a professional musician, observes. "Take the ballet scene from the *Marriage Of Figaro* sequence in the movie *Amadeus*," she says. "That particular performance by the Twyla Tharp Dance Company, while beautiful, does not tell an aspiring dancer anything about how the piece was originally danced.

"There are technical problems as well," she continues. "Video tape and film record a dance from one angle and in two dimensions only. Dancers in large groups may be lost because the camera is too close."

Mason sums up the need for dance notation: "Dancers cannot learn individual parts independently of their dance troupe; there is no manageable master score. Imagine what Symphony Hall would be like if the conductor had to teach each individual part of Mozart's *Jupiter Symphony* at rehearsal, and the musicians had to perform their parts from memory at the concert."

Written notation has flaws too. "If written dance notation was practical," she says, "it would be as developed as musical notation. Symbolic dance notation requires a well trained notator to translate steps into symbols. Few dancers can translate symbolic notation back into dance movement. Dancers don't work this way. Dancers learn steps by example," Mason says.

Besides, a ballet can take months for a notator to transcribe. A notator must witness several productions of a dance to capture all its movements. Some choreographers estimate that it takes six hours of notation to capture a full minute of dance.

How, then, can classical ballet and modern dance grow beyond its present historical limitations?

Edward Dombrower, President of Mirage Graphics, former Thomas Watson fellow and professional dancer, has developed a dance notation system that runs on personal computers. His system improves on all previous static dance notation systems because dancers follow his animated DOM (Dance On Microcomputer) notation without translating the choreographer's steps from a set of abstract symbols. "As a dancer, I've seen the need for some form of notation that is immediately understood, and a dance figure animated by a computer provides that nicely," says Dombrower.

The dancer reads the score from the screen of an Apple IIc or IIe computer equipped with a disk drive and 64 kilobytes of memory. The animated figure moves in real time, and the choreographer or dancer can bend the torso, arms, and legs of its androgynous body. The choreographer or dancer can also "walk around" the figure or rotate the "stage" so that they can view the figure from anywhere in the "house." Using Dombrower's method, someone trying to record a dance can play or edit a previously scored dance or choreograph a new one. A dancer can call up a single step or an entire dance phrase.

Instructions to the dancer or choreographer appear on the screen as a series of menus. The dancer can 'GET A DANCE' or 'REPLAY A DANCE.' The choreographer can 'NOTATE A DANCE' by surveying a second level of menus that manipulates the figure at nearly every movable joint in the human body.

A choreographer can construct dances from individual frames, summon a vocabulary disk to call up basic steps like a Grand Plie, or use the Master Score program to choreograph a whole ensemble.

Dombrower has developed a system in which the dancer masters the fundamental steps of a dance piece from a figure that the choreographer has scored to dance on the CRT screen. Once the dancers have mastered the technique of each step, they can develop the artistic interpretation of each step with the choreographer, much like a symphony orchestra works out its parts with the conductor at a rehearsal.

The choreographer can then demand from a dance troupe what a conductor expects from symphony musicians — first, to have mastered their individual parts before rehearsal, and then to have absorbed the conductor's interpretation of the piece by opening night.

Like a musical score, DOM Notation is accurate, expressive, and concise. It captures the essence of the art, communicates that essence to the performances, and is easily produced and changed.

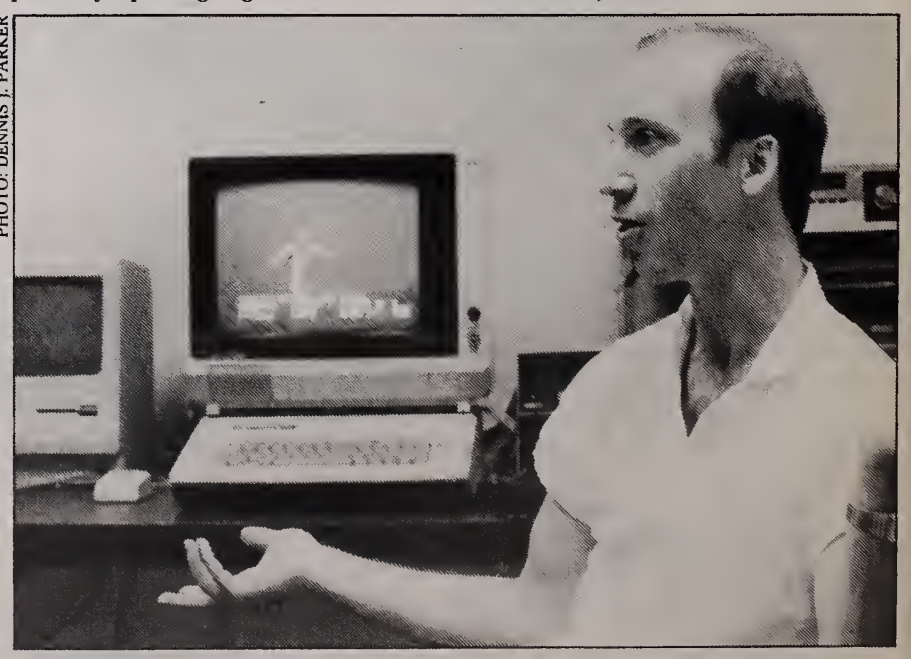
This comparison with music is not welcomed by all dancers. Some dancers feel that using dance notation strikes at the essence of their art — the immediate but ephemeral quality of a modern dance or a classical ballet.

Most dancers concede, however, the need to make dance an art form with a written history. The trade-off between the spontaneity that is lost with notation versus the sense of history that is gained through a dance score is essential to the survival of classical and modern dance. "What if Mozart failed to score the music and words of *The Marriage Of Figaro*?" Dombrower says.

Fortunately for us, he did. But in a world where the words and music of even Antonio Salieri, court composer, arch-villain and self-declared patron saint of mediocrity, survive, *Figaro*'s original choreographic score has slipped into oblivion.

But then *The Marriage Of Figaro* has always bordered on a tragedy. (For information on DOM Notation, contact Mirage Graphics, 2720 Manhattan, Manhattan Beach, CA. (213) 546-1234.)

PHOTO: DENNIS J. PARKER



Edward Dombrower of Mirage Graphics created the DOM (Dance On Microcomputers) notation system as a multidimensional design and data storage tool for dancers and choreographers.

PHOTO: ELIZABETH FENIMORE

James Kumagai, owner of Tokyo Electronics, which celebrates its twentieth anniversary this year.

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Celebrating a silver anniversary this year, the Tokyo Electronics outlet in San Francisco's financial district offers high-tech audio, video, and computer merchandise. The fact that the store has always maintained an emphasis on customer-oriented service comes as no surprise, but its ability to survive for a quarter of a century is nothing short of phenomenal, especially in an industry which has had more than its share of ups and down lately.

The store's computer product line includes Sanyo systems, IBMs and compatibles, and a well-stocked line of name-brand printers including Columbia and Epson. Says store manager Harold Haynes, "We also offer on-site repair services for the computer hardware that we sell; hardware accessories like modems, expansion type boards, and color boards are also available."

Though Tokyo Electronics has an additional store in San Francisco and one in San Jose, Haynes mentions that they concentrate mainly on audio and video equipment while his outlet serves the needs of the computer market. Since the three outlets have the audio, video, and computer markets fairly well covered, Haynes says Tokyo Electronics will probably not expand immediately; he comments, "The audio and video industry is pretty consistent, but the computer industry is so volatile. It's hard to project six months at a time based on what's taking place now."

As for their much-touted customer-oriented service, Haynes explains, "We offer the customers who walk through our door knowledge about what they are buying, and we don't try to sell them something they don't need. I expect our salespeople to have a base of knowledge about the merchandise. One has to lend a certain amount of credibility to the situation. I also expect our sales personnel to be able to project themselves in a courteous manner, so that a customer can feel comfortable with a member of my staff."

Apparently, customers have been satisfied with Tokyo's sales approach judging from the company's longevity. In turn, Tokyo Electronics has encountered many repeat customers, and much of their business comes through word of mouth. As Haynes says, "If there is one thing about our company I would stress overall, it is that we have been in the business longer than most. Anytime you can do that in this industry, you have to be doing something right."

— *Tim Tyler*

The Computer Doctor

660 Sacramento St.
San Francisco, CA 94111
(415) 362-8887

In the business world, computer breakdowns are always untimely, especially when a towering stack of data is in need of processing and a company's profits are at stake. Realizing that time is indeed money, The Computer Doctor in San Francisco specializes in quick and dependable repairs either by way of phone or on-site servicing. The business has been open since last November and is part of a chain of Computer Doctor outlets which began on the eastern seaboard three years ago. "The idea behind the franchise is to have one store represent a major hub in the United States," says Gerald Eng, president of the Bay Area store.

"Our particular emphasis in this marketplace is primarily geared towards the business user," continues Eng. "We do most of our repairs on IBMs, Apples, Compaqs, AT&Ts, ITTs, and of course all of the peripherals that go along with them."

He adds, "We have accounts which are very large in size right down to the small store using one machine for their accounting. So, we cover more or less the entire gamut."

Since it's located right in the center of the city's financial district, a multitude of the Computer Doctor's customers are major companies in the immediate area, which enables Eng's repairmen to give rapid response time. "People love it when we can show up in 10 or 15 minutes to solve a problem," he says. "Although we stress very fast response time, our main concern is fast turnaround time. It doesn't really provide a significant advantage for someone to show up really soon, if they can't take care of the problem right away."

In addition to receiving speedy response and turnaround time, businesses which deal with The Computer Doctor are also offered a service contract. "One of the attributes of the contract is that we'll give technical advice over the phone," says Eng. He observes, "Sometimes a problem involves the obvious and can be taken care of on the phone. This way, people don't have to wait a half hour for the repairman to arrive. And, surprisingly, a large percentage of our calls are taken care of that way."

Eng highly recommends service contracts to his customers because he feels his operation can provide better service on that basis. "It takes us out of the realm of just being repairmen, since it also includes doing preventive maintenance for our customers; we act as a problem prevention source of information. Plus, if you were a customer without a contract, all work would be guaranteed for ninety days, whereas if you have a contract, everything is guaranteed until the contract expires; we will assume all liabilities. On top of that, if your machine is not working and you run into significant problems wherein a certain amount of work must be completed, The Computer Doctor will provide a loaner."

In return, Eng points out that the service contracts provide a steady flow of business, and he states, "The contracts are cost-effective and make good business sense."

"We provide good value for every telephone call and repair job performed, and we don't waste anybody's time."

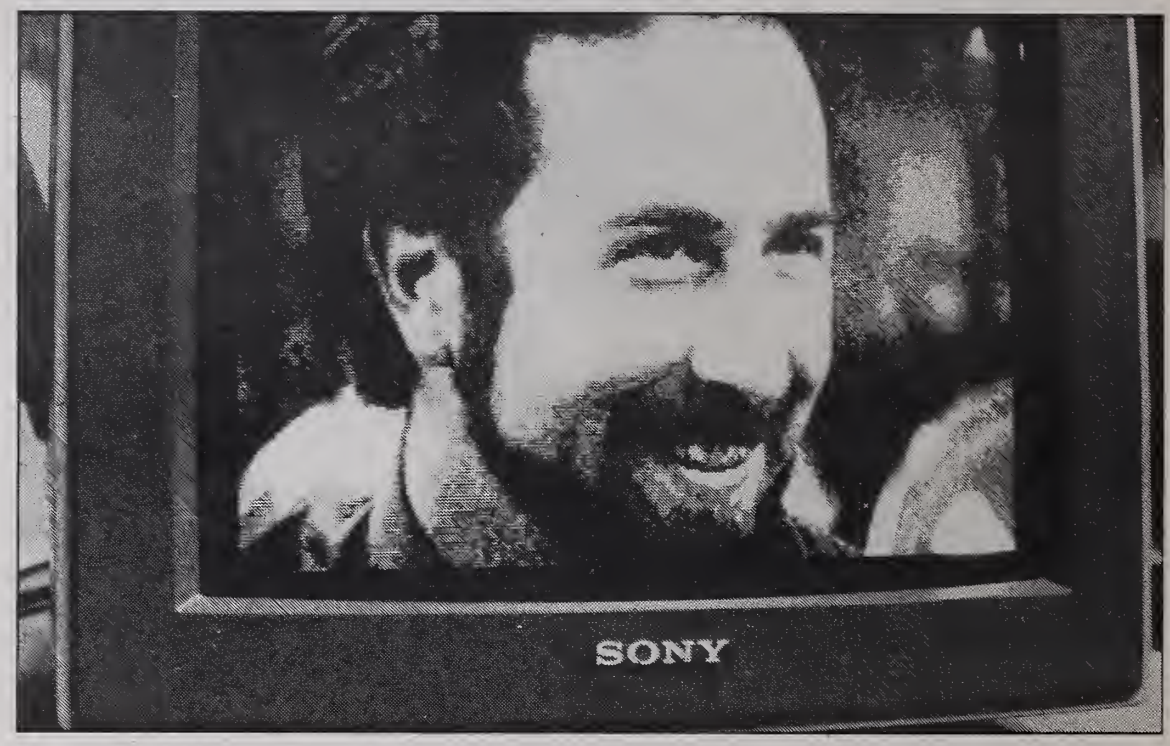
Contract or no contract, Eng stresses that one of The Computer Doctor's golden rules in working with any client is to take responsibility for productivity. He explains, "In the field-engineering business, it is clear cut into hardware and software responsibilities. Let's say a technician comes to you to fix your printer. He supposedly corrects the problem but after he leaves, the malfunction reoccurs. Typically, the hardware person puts the blame on the software company and vice-versa. One of our characteristics is that we don't leave until something is repaired. If we don't have the expertise to do the job, then we will take the responsibility of looking into it by utilizing our contacts."

Overall, Eng underlines The Computer Doctor's ability to save people time and money as the key to their success. He says, "I think the important thing is that we provide good value for every telephone call and repair job performed and we don't waste anybody's time."

— *Tim Tyler*

Developments On The Commodore Front

By Matthew Leeds



Matthew Leeds, as digitized by the Amiga Eye and photographed under arduous conditions by Mary Eisenhart

There's a lot of excitement this month for Commodore fans. The 128 has finally made it to the store shelves, and the Amiga will soon be available. In some ways it's an embarrassment of wealth for Commodore, but they need to move a lot of merchandise to make up for the $80 million writeoff they took at the end of August. I for one hope that things turn around for them, and I think the Amiga will be the machine to take to the bank. With three strong machines out, Commodore has offerings for every segment of the market. There are indications that they may release the IBM clones they market in Europe sometime this year into the US marketplace. Not a good idea in my estimation, as that niche is saturated, and a mature market as well. They would do much better to introduce the Unix Commodore 900. This multi-user 8-MHz Z8000 machine has 1024 x 800 resolution, standard 512K RAM, 1.2-Meg floppy disk and 20-Meg hard disk built in, mouse and keyboard, and will have a base price around $3,000.00 *That's* a business machine.

Commodore has not forgotten the C64. They're interested in producing a hard disk for the C64, but aren't sure if there is sufficient interest to warrant the development and production costs. There are two companies currently marketing hard disks for the C64, and both systems are around $1500.00. I called Commodore for comment, and they said that they have not built it yet, and are just polling public interest. They said that if they get a sufficient response, they will market it.

How many of you would buy a 10-Meg hard disk for $600.00??? What features would you like to see in one? Send your letters to: Mr. Marshall Smith, Commodore Business Machines, 1200 Wilson Drive, West Chester, PA 19380.

For those of you interested in telecommunications for the C64, I suggest you check out Comm-Net. This is a network, based in Colorado, that has a 24 board, all-Commodore system up and running. There are over 9000 programs in the down-load sections. They offer limited access to the general public, and for an annual fee of $50.00 allow full access. There are no additional on-line charges. This is a novel idea, and I am curious to see if the Commodore community will support it. Drop me a line if you've logged on to the board and tell me what you think.

Nanosec has introduced a new compiler for the C64 with some great features. It's a true compiler, generating machine code, not P-code. It allows for chaining of BASIC and other program files, assembles from disk for larger program files, and is file compatible with the PAL assembler. You can combine BASIC, machine code, and assembled files during compiling, as well as reserved memory locations. This looks like a very powerful package.

Look for several great new releases from Brøderbund Software in the next few weeks. *The Print Shop Companion* is a newsletter layout and production enhancement to the bestselling *Print Shop* program. *What Color Is Your Parachute*, from the book of the same name, is a first in the computer software world. Should be a great aid to all the folks down in Silicon Valley who've been laid off lately. Brøderbund will also be releasing a financial package rumored to be the next step up from spreadsheets. Look for it.

The delays in the retail release of the 128 were due to problems with the FCC. In July the FCC raided Seequa Computer Corp. and seized a truckload of computers alleged to be in violation of FCC regulations. The FCC tests computers for radio frequency interference (RFI) emissions. High levels can interfere with police and fire department radios or airline communications. Commodore has had a history of problems with RFI in their computers. The early C64s were notorious for interfering with TV's. The ill-fated Plus 4's had redesigned joystick ports to reduce RFI. One source said that Commodore had to retrofit shielding on every 128 that had been produced, and that fact accounted for the delay in shipping.

Last month I got to spend a day playing with the Amiga Eye. This is a video digitizer for the Amiga. The one I was lucky enough to get access to was still in prototype; however, it knocked my socks off. It digitizes in REAL TIME. I watched myself on screen, moving and talking, digitized in full color. Be certain that this will blow all other digitizing systems in its price range out of the water. Estimated pricing (remember *estimated*) is under $300.00, with availability by Christmas. I know what I want under the tree.

I recently spoke with Steve Jasik, of *MacNosy* fame. He is considering porting *MacNosy* over to the Amiga. For those of you who are not familiar with *MacNosy*, I'll explain. Apple put the operating system for the Macintosh in ROM and declined to release information on how it worked to developers, who felt an understandable need for detailed data on the inner working of the Mac for software and hardware design. Jasik's program gave programmers a tool for disassembling the code in those ROM's. Commodore has stated in public that they will publish all the information developers will need; however, I doubt that they will release commented source code for the operating system. Seems like Steve might have tapped a market. He thinks that he will have *AmigaNosy* ready around November, with a price around $100.

For more information on products mentioned above contact:

Comm-Net
676 South Quentin Street
Aurora, CO 80012
303-341-4266 (voice)
303-340-2247 (data)

Nanosec Corporation
Valley West Plaza
4185 South 300 West Suite 12
Ogden, Utah 84403
801-392-0109

Steve Jasik
MacNosy
415-322-1386 □

Matthew Leeds is a writer/photographer specializing in high technology. He has been involved with Commodore computers since 1983, and co-produced the Commodore Show in San Francisco.

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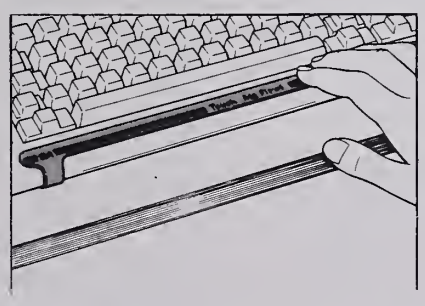

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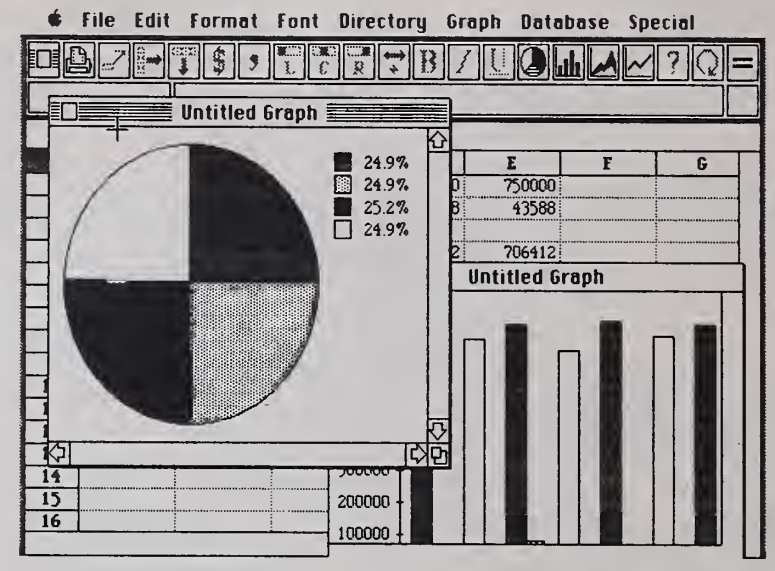
Spreadsheet Mania

By Barbara Leone



***Crunch* is a spreadsheet that combines presentation graphics with a database and a note-taking feature, somewhat like a mini-word processor. It has an icon bar across the top of the screen, which adds to its ease of use by eliminating the need to go to menus for printing or creating a graph.**

I'm beginning to feel a bit soggy from the flood of spreadsheets hitting the market for Macintosh. It seems the software manufacturers are always looking for some new angle that is going to bring in megabucks. When Macintosh was first released it was Databases. Relational databases, integratable databases, graphical databases, all offering some questionable greatness or panacea for our database ills. The consumer was so confused by it all that many ended up using *Macwrite* or *Multiplan* to store data because the choices were far too staggering to tangle with.

Now it's spreadsheets. Where to turn; do we buy *Jazz* to have it all or *Excel* for power beyond anything ever known by common man or Mac user? But then what about *Quartet* or the old standby *Multiplan*? Or, is *Crunch* the right choice? In case you haven't heard of them, these are the most popular spreadsheets being marketed very heavily these days.

I have come to the conclusion that all of these products have value in their own unique way. That is, one is not greater or better than the other, as the marketing hype would have you believe.

If you've been keeping up with my monthly articles you will know that last month I sang the praises of *Excel* and the month before I reviewed *Jazz*. I want to take a different approach in describing *Crunch*. *Crunch*, developed by Paladin Software Corp. in San Jose, is a spreadsheet that combines presentation graphics with a database and a unique notetaking feature that is somewhat like a mini-wordprocessor. *Crunch*, like the others, has value in its design. But, then how do you decide which is best for you?

It seems to me that it is necessary first to evaluate your needs. First of all, do you even do anything that requires a spreadsheet? A great many of my clients bought *Multiplan* with their Macintoshes and have never even opened the box. They really did not need a spreadsheet, since no amount of number crunching was required in their jobs. However, when the Macintosh was first released (some dealers are still doing this) *Multiplan* was practically an automatic part of the sale. The key thing to keep in mind when evaluating your situation is, are you in need of a better way of doing calculations for such things as financial planning, budgeting, or just managing complex calculations? If so, you probably should look into using a spreadsheet for these tasks.

The next question you should ask yourself is how complex are these so-called complex calculations you need to manage? The spreadsheets being developed for Macintosh vary in their abilities to analyze large and complex groups of numbers and formulas. In other words, some of these spreadsheets may have far more than you will ever use, and others not enough. I'm going to attempt to sort through and simplify the various levels of complexity.

Crunch offers ease of use and many number-crunching features that compare well with the other spreadsheets mentioned. It is lacking, however, in the area of performance. Scrolling is slow, and it lags a little when accessing the menus. This may be a problem only in the first release, and you may want to wait if you're considering this one. *Crunch* has an icon bar across the top of the screen, which adds to its ease of use. Instead of having to go to the menu for things like printing or creating a graph, the icons provide quick access to these commands. The graphing capability is very good, but is not as extensive as *Jazz* or *Excel*. If presentation graphics are a priority for you, *Excel* or *Jazz* may be a better choice. *Crunch* has something called Macros: the ability to create your own reusable formulas. The database is very straightforward. Its sorting and query capabilities are very fast and effective if you need this sort of thing. The documentation is outstanding, as is the program, for its particular level.

So how do you decide which one is for you? I would evaluate them according to their levels of sophistication. Level 1 being the most sophisticated, Level 2 having sophisticated capabilities, but not to the same extent as Level 1. Level 3 performs a medium range of complex tasks, and Level 4 performs medium to low range calculations, does not have macro capability and should be used for less complicated activities.

One way to define how complicated your spreadsheet applications are would be to examine the features that you consider to be the highest priority. That is in spreadsheet size, *Jazz* has 8192 x 256 (rows x columns), *Crunch* has 9999 x 250 and *Excel* has 16,384 x 256. Another way to judge the level of sophistication is the spreadsheet's predefined mathematical functions. *Jazz* has 96, *Crunch* has 74 and *Excel* has 84. Then, does the spreadsheet have linking capability? That is, can you create spreadsheets associated with one another and have the two update simultaneously where defined? *Jazz* cannot do this, *Crunch* and *Excel* can. In the interest of user-friendliness, does the program have an on-screen Help facility? *Jazz* does not, *Crunch* and *Excel* do.

Do you need to share data with another computer? That is, do you need to send files back and forth via modem? If so, your spreadsheet program should have the built-in ability to do so. *Crunch* does not do this, but *Jazz* and *Excel* will. Their methods vary, and if this is an important feature in your decision you should research the transfer methods to make sure they coincide with your needs.

Do you need integration with other programs? *Jazz* has Graphics, Database, Word Processing, and Communications in addition to the spreadsheet, and date are interchangeable between each. If you need all that, in addition to your spreadsheet, the *Jazz* spreadsheet is very good, and I would put it in the Level 2 category since it, as yet, does not have macro capability.

Crunch with its graphics, database and wordprocessing features is in the level 3 range with its spreadsheet. It does not have the high performance capabilities that are found in *Excel* and *Jazz*. *Excel* is the only spreadsheet of all mentioned that deserves the Level 1 rating. *Quartet* deserves a level down from *Crunch* where its spreadsheet is concerned, and *Multiplan* would sit on the last level. Not to sell *Multiplan* short — it is still a very good spreadsheet, for simple applications. However, it has become the least powerful of all the above.

Keep in mind that this evaluation may be an oversimplification for more complex spreadsheet applications, and if you are still unclear as to how to make a decision about your spreadsheet needs, it would be wise to seek the advice of a qualified consultant or your company's computer expert.

These spreadsheets cannot provide a generic solution for all users. This is why it is important to evaluate your needs first, then look at the individual features offered by these programs. It can be very easy to over-purchase a product of this type. Don't get caught up in the marketing hype or the enthusiasm of a friend or users-group that is head-over-heels in love with some product they are using. It may be that it answers their needs, but will be way beyond, or well beneath yours. Buyer beware!

Barbara Leone owns and operates Microsource Consulting Services in Orinda, California. She works with all sizes of business training and consulting on the Macintosh and IBM personal computers. For more information call: (415) 254-4999.

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R.I.P.
Electronic Freedom
(1977 – 1985)

By Brock N. Meeks

What is freedom? *Freedom is the right to choose: the right to create for yourself the alternatives of choice. Without the possibility of choice and the exercise of choice a man is not a man but a member, an instrument, a thing.*

— Archibald MacLeish

"Child Molesters Use Computer Network." Those headlines rocked the online community. Testimony presented to members of the Senate Subcommittee on Security and Terrorism during an oversight hearing in July confirmed the use of computer bulletin board systems (BBSs) by child molesters. Government officials testified that pedophiles used these BBSs to find the names and addresses of other pedophiles and their young victims.

Disgusting? Yes. Illegal? No, at least not yet. Should it be? Maybe.

Just The Facts Ma'am

On July 17th, Senator Paul Trible (D-VA) introduced the Computer Pornography and Child Exploitation Prevention Act of 1985 (S. 1305). The Congressional Record for that day (Vol. 131 No. 80) carries full text of the bill and states the purpose of S. 1305 in the words "Trible: S. 1305. A bill to amend title 18, United States Code, to establish criminal penalties for the transmission by computer of obscene matter, or by computer or by other means, of matter pertaining to the sexual exploitation of children and for other purposes."

The bill "is designed to deter and punish two insidious uses of computers," says Trible. "First, by pedophiles to communicate with one another and to catalog information about their victims. The second is the offering of so-called sex talk computer services similar to the dial-a-porn programs which have sprung up around the country."

In official testimony, Trible said the use of computers "to transmit offensive material is apparently not proscribed by existing federal law."

Bingo. An Information Age loophole. Enter Uncle Sam wearing the hat of the Federal Communications Commission.

According to Jack Smith, general counsel to the FCC, obscene transmissions by computer are not prohibited. In addition, transmissions that are not in themselves obscene, such as the names and addresses of child abuse victims, are also not illegal. Since the material is sent over the phone lines, however, he did suggest that this type of activity would be "an appropriate subject" for federal regulation.

If S. 1305 passes, you could see your friendly neighborhood sysop turn into (in theory) an agent of the Federal government, an electronic cop that must report potentially "offensive" material you post, public or private.

According to United Press International, Deputy Assistant Attorney General Victoria Toensing acknowledges that passage of S. 1305 would help in stemming the flow of pornographic material by computer. Toensing, however, warns that legislation to prohibit the sending of descriptive information about children would raise "serious constitutional problems."

Pandora's Box

There is no doubt that S. 1305 would leave pedophiles little room to trade or communicate electronically regarding their activities; but the bill does not stop there. The language of S. 1305 leaves a large grey area, open to legal interpretation, that could have a negative effect on the freedoms and privacy of electronic communications.

Here is an excerpt from the second section of the bill: "Whoever knowingly owns, offers, provides or operates any computer program or service having reasonable cause to believe that the computer program or computer service is being used to transmit in interstate or foreign commerce any matter the carriage of which is herein made unlawful . . ." is guilty of a federal offense.

What's that sticking in your craw? The phrase, "having reasonable cause to believe" making things tough to swallow? You're in good company.

Paul Bernstein, a Chicago attorney well respected for his defense of civil liberties in computer communications, shares the same opinion. Bernstein sees this clause as placing the burden for detecting unlawful materials on systems operators. The bill's language does not appear to distinguish between public and private communications within systems.

Just where does this lead? It's possible that with FCC regulation, all your comments via an electronic message system—private or commercial (such as The Source or CompuServe)—will be subject to some level of monitoring (Mr. Orwell, are you listening?)

Privacy, It's A Right. Right?

I'm all for the stopping of activities (electronic or otherwise) that promote the merciless exploitation of children, but at the expense of my electronic privacy? Give the FCC legislative rein and they will soon saddle the online community with bureaucratic regulation and red tape.

If the Trible bill passes, you could see your friendly neighborhood sysop turn into (in theory) an agent of the Federal government, an electronic cop that must report potentially "offensive" material you post: *public or private!*

Will you one day have to pass a test to become a sysop? Will all BBSs have to be registered, like guns? It's time to take on the mantle of "Modem Minutemen" and help protect our "global village."

Keep A Cursor Lit

If you're involved with telecommunications (that's a 20 to 1 shot considering you're reading this column) then you are well aware of the potential of this medium. You can use it (as a powerful organizing and lobbying tool) or lose it (by sitting on an apathetic cursor).

Where can you learn more? Open a buffer and stuff the following on a disk somewhere (preferably not the one that routinely rests under the coffee mug):

- The W.E.L.L. — a computer conferencing system. Data line: (415) 332-6106. Carries a teleconference on S. 1305.
- House Bill Status Office (Federal) — if a hearing has been held on a topic (like S. 1305) it's likely top experts have been called on to give their opinions. In addition, all major information sources are usually identified. Call (voice) (202) 225-8646 and the faithful civil servants will provide you with all the pertinent information regarding the topic.
- The Source — a commercial information utility, carries "Telelaw," a teleconference on the subject. A Source membership is required to participate.

The full legal implications of S. 1305 are not known. I suspect it will take many long hours, both online and on that antique telecommunications device—the phone—before the verdict is returned.

I think Thomas Paine (using quill and ink) summarized the issue 200 years ago: "Those who expect to reap the blessings of freedom must undergo the fatigue of supporting it." □

Brock is a San Diego based freelance writer. He writes often about telecommunications, law and politics.

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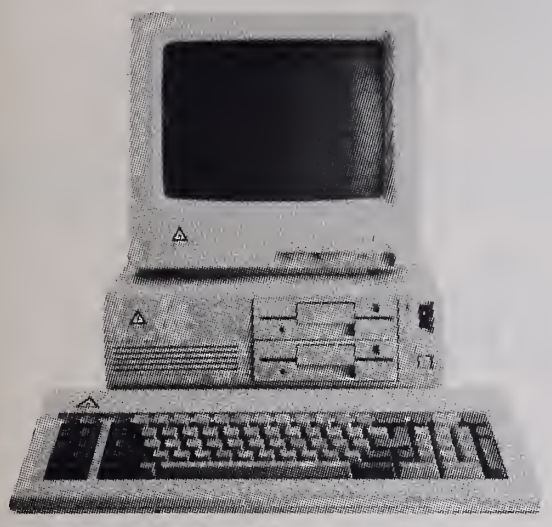

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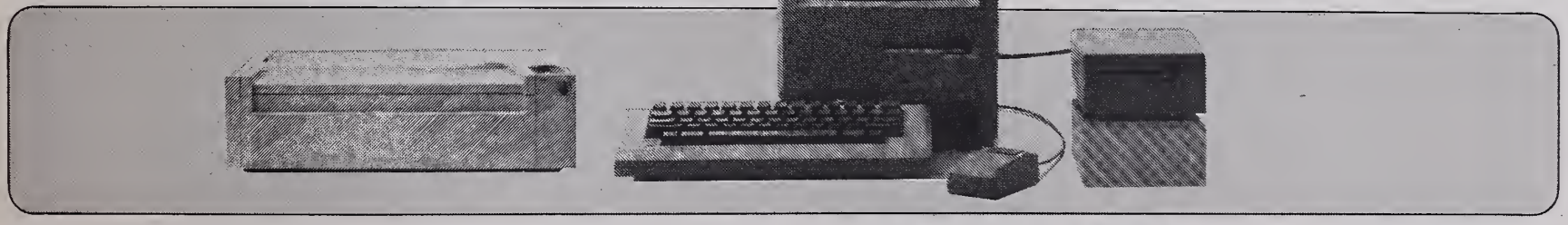

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Saturation And Shakeout

By L.K. Engelhart

A saturated market is one which will accept no more of a given product at the existing price. We all recognize the variables here: demand, supply and price. Most analysts are claiming that either there is a dwindling demand for small computers or that the prices are too high. Never having been one to follow the crowd, I would like to suggest that the problem here is that there is no supply. That will seem ludicrous to anyone who's been wading through advertising for computer products recently, but give me a chance to explain.

The market for small computers is not saturated. I know personally a good number of individuals and business owners who either have no computer or who are dissatisfied with what they have. These people believe they need computers, yet they are not buying. Now I ask you, does that sound like a saturated market?

An awful lot of money is being spent trying to get us to buy small computers. It seems like much of the cornucopia of venture capital is poured into high-tech, computer related products. Fortunes have been made in this industry and great opportunities are being forecast daily. So, you say, how do you explain what others are calling saturation and what is obviously a shakeout among small computer manufacturers?

The Computer Craze

In no more than four or five years, the public's feeling about computers has changed from mystification and paranoia to euphoria and uncritical optimism. As a professional in the industry, I was at first pleased to see this growing acceptance of a tool whose capabilities I believed in very much. Then I began to notice a strange glitter in the eyes of these newly initiated disciples.

A recent article in the *Wall Street Journal* gives several examples of ordinary people who believe that everyone will inevitably come to use computers, but who do not seem to know what we will be using them for. These people are uncomfortable with the idea that, whatever it is that computers do, somehow they are the key to the future, and anyone without access to them will be locked out. What is most significant about these people is that their beliefs about the capabilities of computers seem to conflict with what they know about them from personal experience.

This will sound like heresy, but the widespread shared belief in the accession of the computer to such a position of power has characteristics similar to other popular delusions which masses of people have shared over the ages. Although few will admit it, our economy is not in such hot shape recently. Many people who would otherwise have been out of work have sought refuge in "high-tech." Even large corporations which would otherwise have been out of business have sought refuge in "high-tech." We might even say that our entire economy would be suffering from economic deprivation had we not found salvation in "high-tech." Many individuals, corporations and industries have learned the song by heart, have committed themselves to the computer craze, and have enough at stake in it to protect it and promote it beyond reason.

Galloping Venture Capitalism

There is a significantly large group of intelligent, well established business people who want to believe that, by using computers, it is possible to "push a button" and achieve awesome gains in productivity. It actually adds to the credibility of this potential that these business people are ignorant of exactly how it is done. That, of course, is why we have to hire all these expensive "computer people."

Their weakness for computers has made this group ripe for exploitation by venture capitalists. Venture capitalists are interested in money. Making a 100% profit on their investment every six months is the kind of venture that interests them. This kind of profit is not generated by a rational market. To make this kind of money you have to sell a great volume of something very quickly to a lot of people who don't know what they are buying, and then be able to stay out of jail when they find out what they got. Amazingly enough, there have been a great number of successful ventures of this type in the computer industry.

Solutions Chasing Problems

Product development is popularly considered a process of "thinking up" new products. Our typical entrepreneur discovers a product that can be mass produced, gets it into production and then sells out to a large corporation. All you have to do is be creative enough, and you will find this dream product which the marketplace will snap up by the millions.

I'm concerned that developers of software for small computers seem to have adopted this strategy, because professional designers of "real" information systems have learned the hard way that applications have to be designed with the total involvement of the eventual user. An application which is "dreamed up" may be useful to its designer, but it has a very small chance of meeting the needs of the marketplace.

Take a look at the small computer software products that have attained positions of respect in the marketplace, and you will find they are mostly general purpose application development environments and not applications at all. Moreover, each version which better meets the needs of the user becomes the leader. The user is clearly in charge.

The supply side product development strategy also says you can create demand by packaging and displaying your product properly. I suggest that the money spent by hardware and software producers on colorful advertising and hype for business products is wasted. I know it isn't very exciting, but the only thing that sells these products to business is observed utility and potential for increased productivity.

Saturation And Shakeout

As a professional in the computer industry, and one who has a high regard for the potential of computers in business, I have occasionally been accused of having irrational expectations for computers. I want to tell you, we computer professionals are no longer the ones with the irrational expectations. Somebody is building a house of cards here, founded on the notion that computers and information are "the future" and willing to take a card from anyone who has "dreamed up" a trick to make it work. Tricks like "biological computers," "artificial intelligence," "expert systems" and "supercomputers."

Our only hope is that not everyone will buy into this delusion. Indications are that they have not. As a matter of fact, people have largely stopped buying small computers and software products. They have found through their own experience that these products are not what they need, and they are disillusioned with the producers and the promises they have made.

The market is not saturated, but there will certainly be a shakeout. The business buyer is considerably more sophisticated now and becoming more knowledgeable every day about how to put the right products to use. Now all we have to do is start producing them. □

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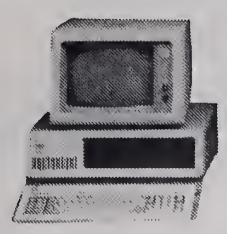

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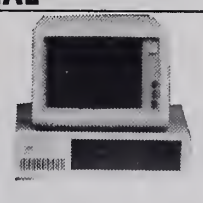

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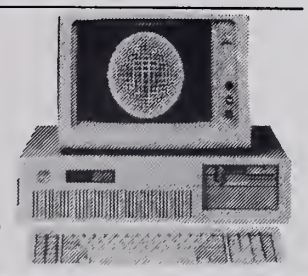

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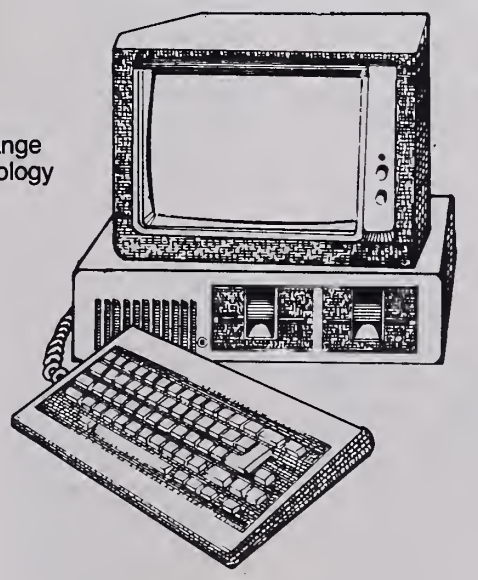

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Templates For All Occasions

By Robert D. Athey Jr.

In the July column, we discussed making templates for repeated jobs, such as letter writing or addressing with *Perfect Writer*. Templates were first set up in early programs (in big mainframe computers) to make input easier on non-computer persons that simply sat in front of a CRT (or in even earlier times, a teletype) and entered something to fill in a blank. My first exposure to templates was in scientific programs in mainframes about 18 years ago. We would put in numbers from our observations, and the computer would calculate viscosity or some such.

The early uses in popular personal computers were in the "spreadsheet" applications. Now, to non-financial people, "spreadsheet" is a piece of jargon meaning nothing. For financial people, it is an array of numbers in two dimensions (up/down is one dimension, and across is the other dimension), showing something such as costs, sales, overhead and profit (or loss) over some period of months or years. The early popular personal computers had such programs available, setting up "cells" to isolate each such number or title, and included a few templates for check book balancing, a family budget, and maybe even a try at an income tax form.

Using the spreadsheet for as many of the possible applications as you can means that you must recognize the spread sheet program as a simple array of cubby holes, like post office boxes. How you adjust their size, and assign their uses, will depend on how imaginative you are at seeing what a cubby hole can be.

The spreadsheet programs I've seen have come with up to 20 templates, everything from the family budget and checkbook I mentioned earlier to real estate management, stock holding management, and what the consultant should charge for his fees. However, being an independent soul, I cook up my own versions of what is needed. We have made up flow charts and low precision graphs for publication in technical magazines; such as Figure 2 which was in the July issue of Journal of Coatings Technology (the paint chemist's magazine). I got the idea from making up more conventional spreadsheets with colons as the vertical borders for columns, and periods or hyphens as borders for rows. All you need for such vertical bordering is a one-space-wide cell filled with a colon.

I do have disks containing more conventionally used spreadsheets. My consulting business financial records are on a quarterly basis, a convenient size for a spreadsheet file. Another of my own designs is a sheet on my stock holdings, showing purchase/sale dates and prices with commissions and gain/loss. The records on the gas mileage for my car are in yet another spreadsheet. The grades of my UC extension students were kept in a spreadsheet, so the speedy delivery to the school after the final was a lot easier.

FIGURE 1

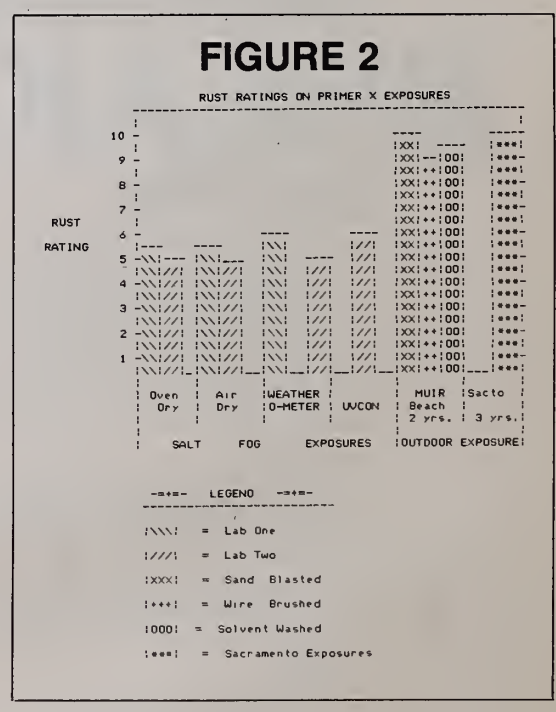
```
.op
.df addr-sta.gov
.rv TITLE, NAME1, NAME2, ADDRESS1, ADDRESS2, ADDRESS3
.av DATE

                                        ATHEY TECHNOLOGIES
                                        P.O. Drawer 1459
                                        El Cerrito, CA 94530
                                        &DATE&

&TITLE& &NAME1& &NAME2&
&ADDRESS1&
&ADDRESS2&
&ADDRESS3&

Dear &TITLE& &NAME2&;

     I am concerned about the recent announcement that the
state of California will

                        FILL IN TEXT

                                        Sincerely,

                                        Robert D. Athey Jr.
```

Obtained from file called addr-sta.gov

Another disk is for doing paint formulation calculations using the spread sheet program, currently with *Perfect Calc*. A paint chemist (or formulator) makes up what is known as a Master Batch Card, listing the types and amounts of ingredients for a one-hundred gallon batch. Unfortunately, paint is seldom made in 100 gallon batches — it's more likely five for sampling to a customer, or 600 to 1000 for a production run. Each batch made has a recalculation of the 100 gallon card to the scale of the scheduled batch. So the formulator has to be skilled at making up the batch cards for the production people. I plan to develop this for other CP/M spreadsheet programs, and sell the templates to any other paint formulators using CP/M devices.

The *WordStar* or *NewWord* user will not need templates that often, as these programs format as they write. In other words, what they see on the screen is what they get from the printer. However, in some instances, a formatted letter can be a blessing. The example I show as Figure 1 is a letter prepared for merge mailing any time I want to write a set of elected representatives, state or federal. All I have to do to write them, when my sensibilities are offended by some governmental action, is to type in the text once in the letter template I have constructed. An attendant file of the addresses of the elected representatives, properly formatted to print TITLE, FirstNAME, LastNAME, and three address lines, has already been made up. So I read or hear something that makes me want to write, I sit down to the computer booted up with the correct disks, and I bat out 100 words expressing my view. Then, I call up the routine that merge-prints the file, and sit back to see the letters fly out of the printer. I am much less inhibited about sending out five or ten now, where I would previously do one or two, hand-written. So, letter templates even make sense for the *WordStar* or *NewWord* user, on occasion.

FIGURE 2



By the way, I recently saw some copies of the *Morrow Owners Review* and was favorably impressed. It speaks to all levels of users, and has an excellent column on the use of the fine points of *NewWord*. The Morrow was packaged with *NewWord* as its word processor. □

Bob Athey has over 20 years of experience working on computers and runs his own company on chemical consulting and contract research. He can be reached through MicroTimes or at (415) 526-3541.

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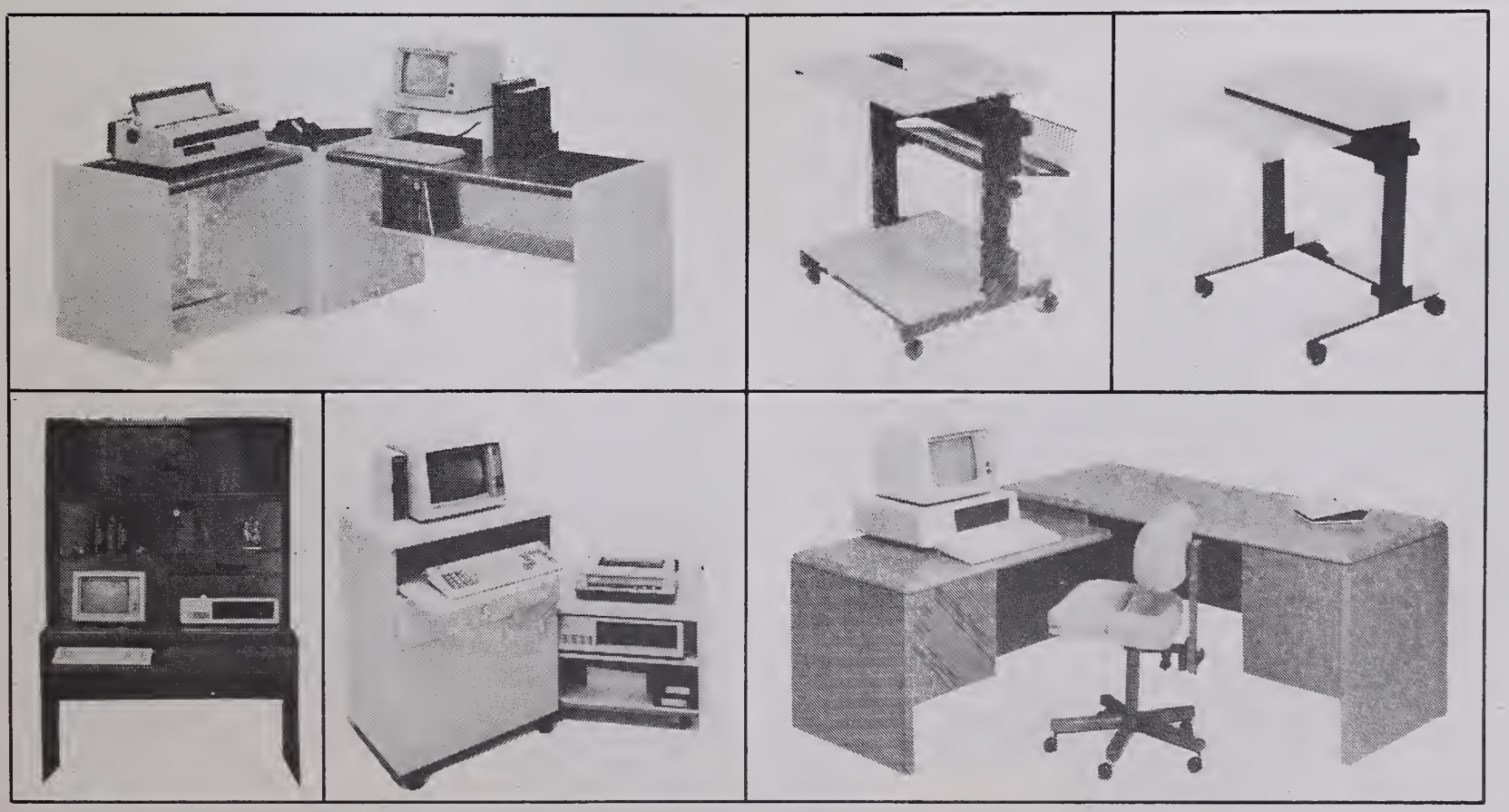

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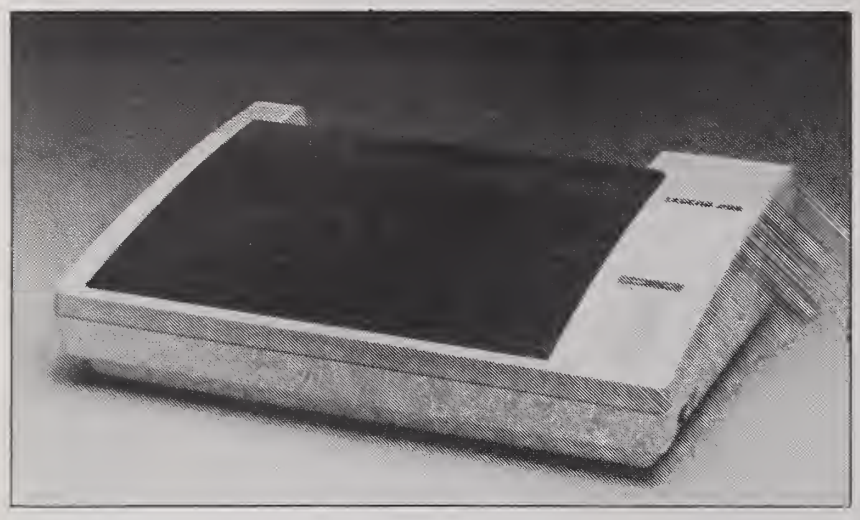

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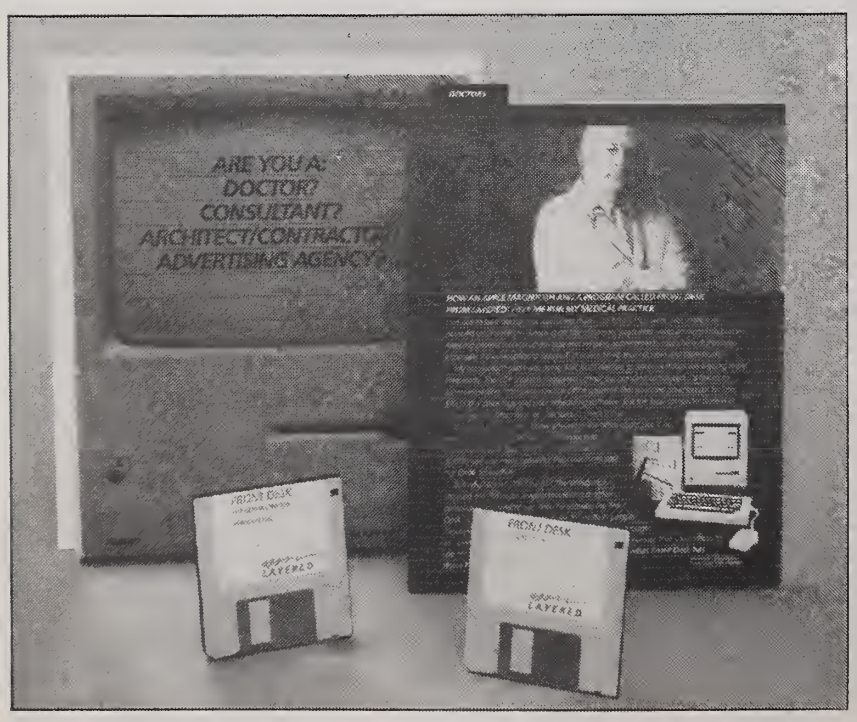
CAL-ABCO's new Legend 808 dot-matrix printer retails for $199; it offers bi-directional printing with a choice of 100 cps draft speed and 50 cps near-letter-quality speed. Other features are nine-wire "square dot" technology for better definition, a 95-ASCII-character set with true ascenders and descenders; seven programmable printer pitches from five to 16⅔; standard friction and tractor feed accommodating paper sizes from four- to ten-inch paper. It operates at 52 db. CAL-ABCO, 6041 Variel Ave., Woodland Hills, CA 91367, (818) 704-9100.

The Screen Of The Future

The Facit 4440 Twist VDT features a 15-inch 40 MHz bandwidth monitor that can be tilted, lifted and twisted to suit the operator's convenience. For conventional data processing the horizontal display is 80 characters x 24 lines; for word processing the screen can be rotated to the vertical position for an 80 character x 72 line display, so you can see onscreen exactly how the page will appear. The Twist is available with either white or amber screen, and includes a detached keyboard with numeric keypad and programmable function keys. Information on the Facit Twist is available from BASIS, 1700 Shattuck Ave., Berkeley, CA 94709, (415) 841-1800.



Let Mac Manage Your Resources

Front Desk from Layered Technologies is a multiple-resource scheduling system for the Macintosh. It allows the user to schedule up to fifteen different people, places or things while simultaneously performing time accounting — e.g. how a company's personnel are spending their workday, how much income they're generating, and what it's costing them to do it. Daily, weekly and monthly options are included. Layered Inc., 85 Merrimac St., Boston, MA 02114, (617) 423-9041.

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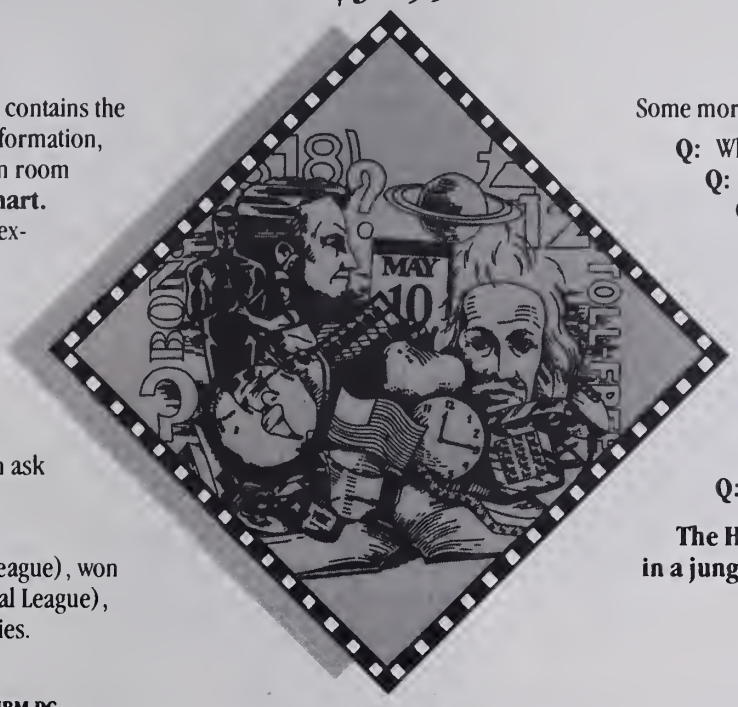

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Q: What is the monthly payment on a $7000, 14% annual, 4 year loan?
Q: How many calories are in an apple?
Q: How many Mexican pesos is a US dollar worth?
Q: What is the toll-free number for Apple Computer?
Q: What is the time now in Tokyo?
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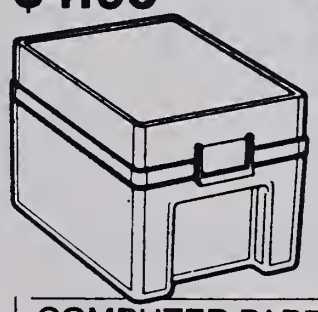

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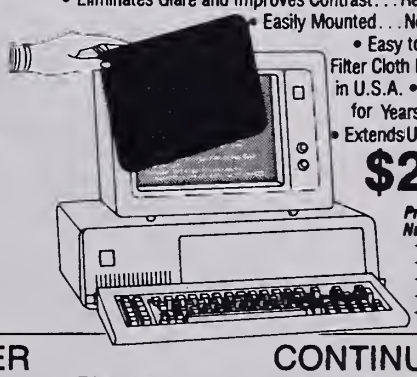

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1351	8½"x6½"
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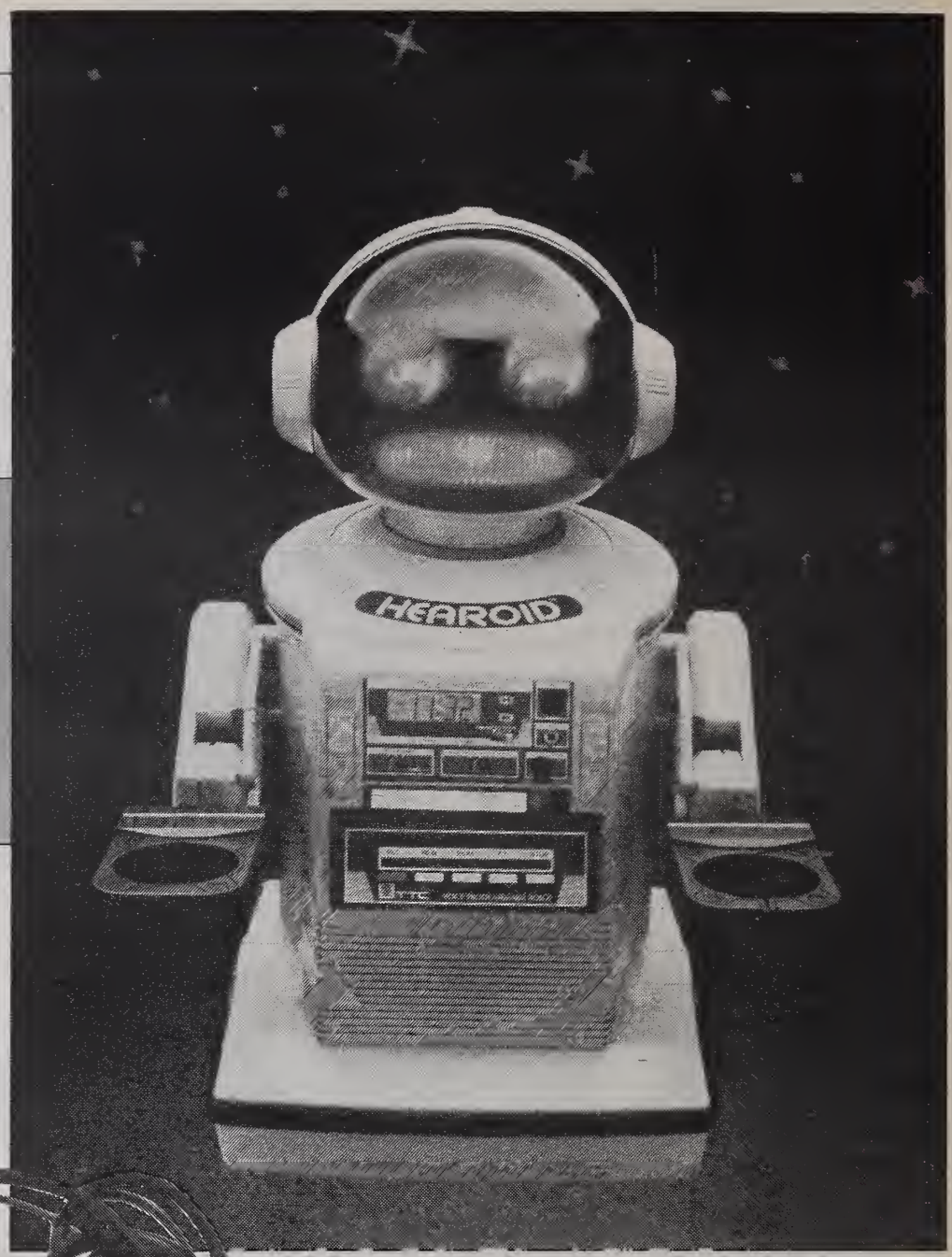
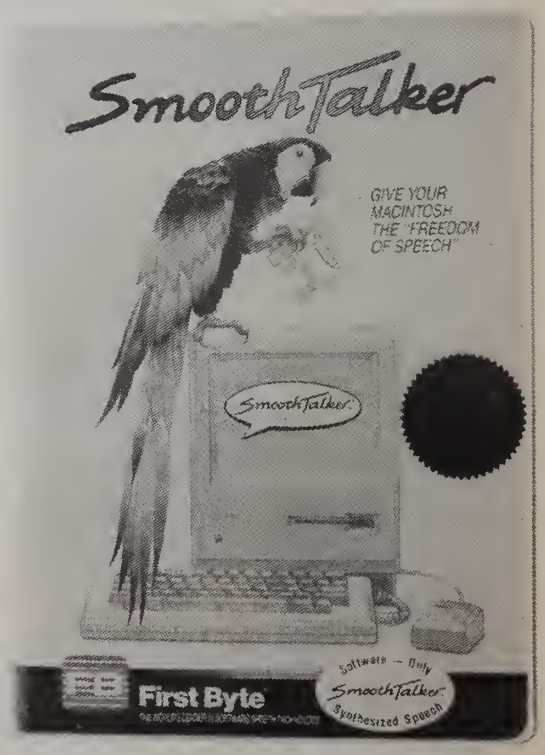


Link For Commodore Peripherals

E-Link, from Progressive Peripherals and Software, is a Commodore serial to IEEE interface, designed for compatibility with Commodore IEEE peripherals and transparent to the C-64. It uses none of the C-64's internal memory, has an independent power supply and is microprocessor controlled. The user needs only one E-Link, regardless of the number of IEEE peripherals in use. Progressive Peripherals and Software, 2186 South Holly, Suite #2, Denver, CO 80222, (303) 759-5713.



Smooth Talker 2.0: New Voice, Lower Price

The latest version of First Byte's speech synthesis software for the Mac includes the long-promised female voice option, interchangeable with the male voice with a click of the mouse. Other enhancements include the ability to use the software with Microsoft BASIC and other programming languages, and a reduced price from $149.95 to $99.95. First Byte, Inc., 2845 Temple Ave., Long Beach, CA 90806, (213) 595-7006.

Database Made Simple

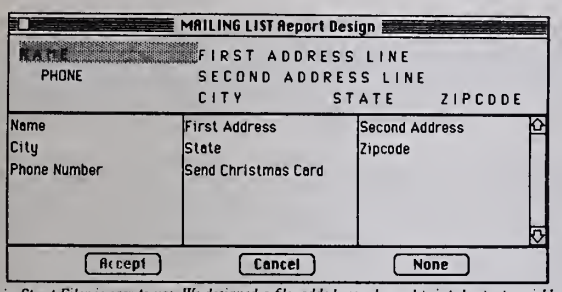
MAIN STREET FILER IS A REAL CHARMER

BEAUTY AND THE BEAST

It's true. The designers of Mainstreet Filer have come up with a powerful database that is SIMPLE to use. If you're like me, you have more important things to remember than abstract computer commands that only a programmer could love. Besides, I don't have the time to learn or the money to train someone in D-Base or its clones. MS Filer is menu driven with plain English commands. And get this—at the top corner of the screen is the page number of the manual, just in case you can't figure out something. The documentation is concise, well written and typeset with lots of sample screens.

REALLY EASY

Mainstreet Filer is available for both the IBM PC's and compatibles, as well as the Macintosh. All information is organized into files, records and fields. You can request extra on-screen help throughout the program. WYSIWYG, what-you-see-is-what-you-get screen dumps to printer is real handy. There is no sorting when adding or deleting information. Free form indexing allows you to change the indexes without loosing data. Four concurrent primary indexes are connected with four linked indexes. Save up to 15 report formats plus 15 selection criterias per file. One of the features I like the best is the Automatic Data Protection routine that saves data to disk after every 10 records. Also, there's a set of routines that prints duplicate names which are either an exact match, cross match or partial match, that is an invaluable time saver for updating.



Main Street Filer is easy to use. We designed a file, added records, and printed reports quickly.

FIELD	TITLE	PRESENT FIELD CONTENTS
1	NAME	Jones Company
2	CONTACT NAME	Jones* Mr. Bill
3	ADDRESS	234 Sycamore
4	CITY	San Francisco
5	STATE	CA
6	ZIPCODE	94123
7	PHONE NUMBER	415/234-6767
8	INVOICE DATE	03/15/83
9	INVOICE NUMBER	AD5785958
10	INVOICE AMOUNT	2890
11	AMOUNT PAID	1500
12	DATE OF LAST PAYMENT	04/14/83
13	PAID IN FULL	No
14	DATE OF NEXT CONTACT	04/20/83
15	ACTION	Hold Up Shipment
16	MAILING LIST	yes

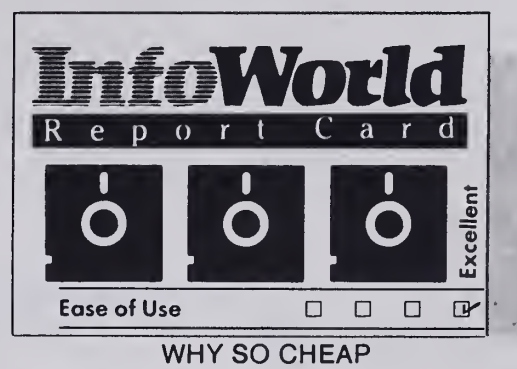
Sample screen on IBM PC

HERE'S WHAT IT DOES

MS Filer is designed to accommodate names and addresses, customer statistics, supplier and inventory reports, invoices, appointment dates and other types of information. Information retrieval and reporting may be customized to individual needs and may be based on all fields. Built-in report forms include Rolodex, 1-4 up labels, customized envelopes and letters, columnar reports and mailing list reports. Word processing and data files can be merged with popular programs such as Wordstar, Multimate, Easywriter II, Spellbinder, Word Plus PC, Volkswriter and more.

SOME SPECIFICS

Each record may contain up to 45 fields of 50 characters. Filed titles may be up to 20 characters in length. Total record capacity is up to 2,250 characters per record. Up to 32,000 records per file maintained in up to four concurrent indexes. With MS Filer, sorting is unnecessary. MS Filer is FAST.



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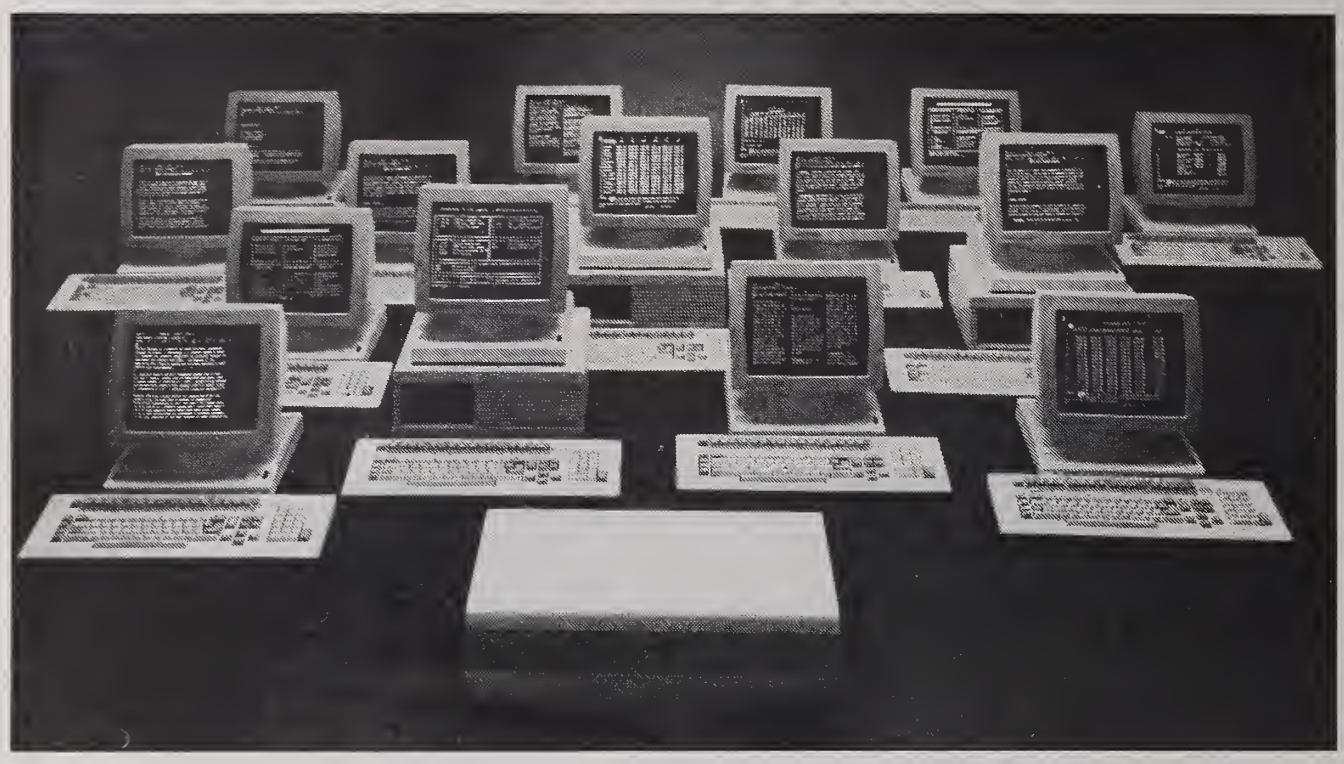
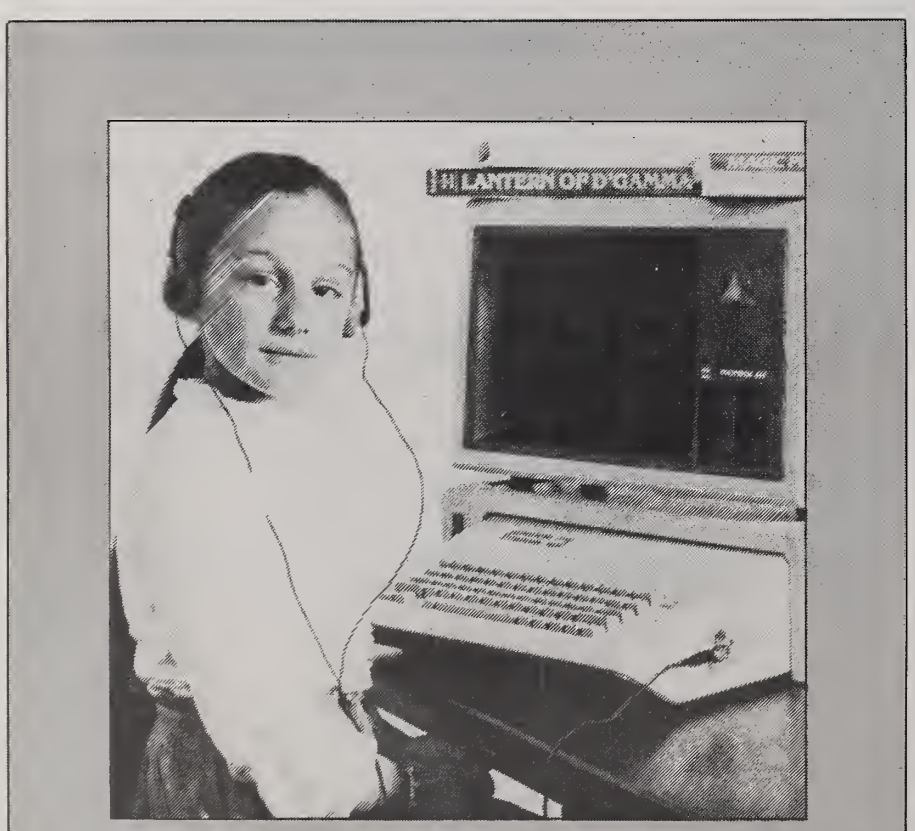


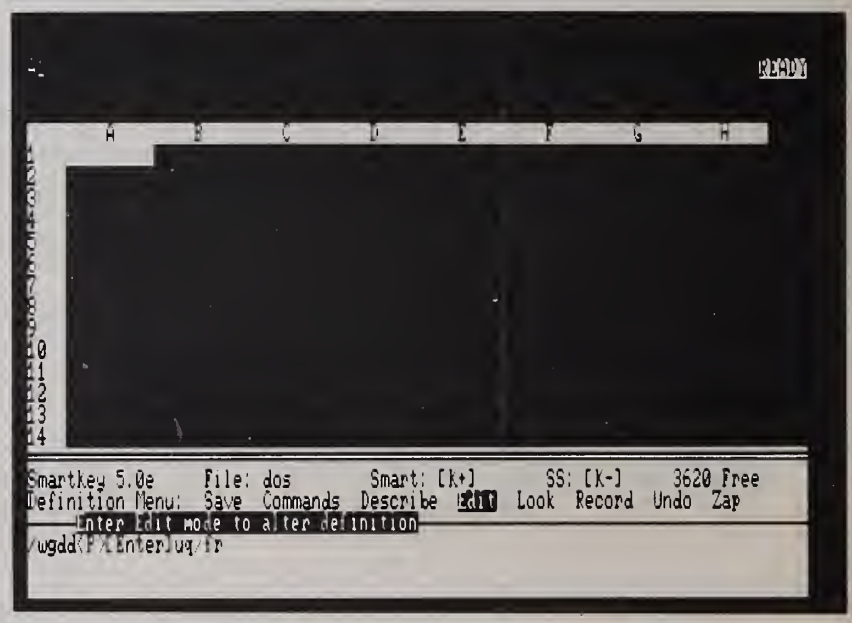
High Performance Office Systems

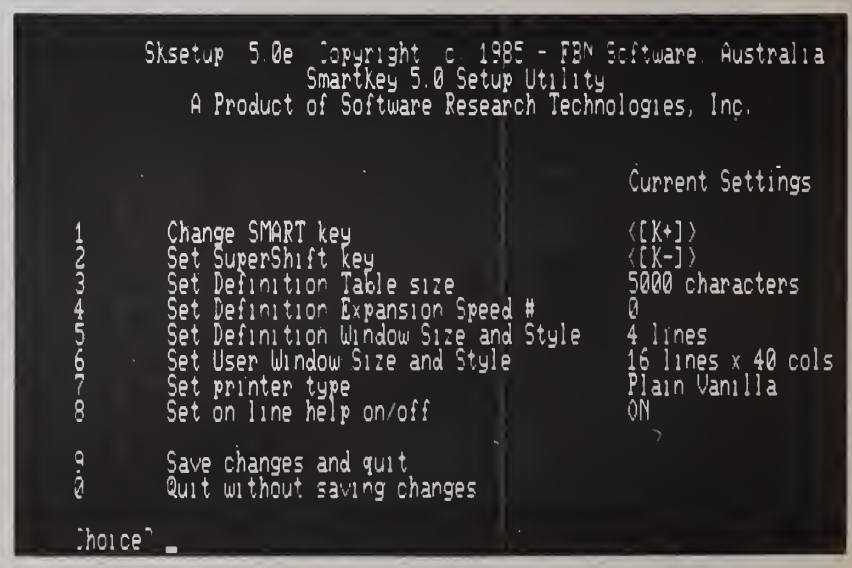
Fortune Systems of Redwood City, a pioneer in Unix-based multi-user microcomputers, announces its new SX45 and SX70 multi-user computers. The SX series can link up to 24 terminals and utilize any combination of Fortune terminals, Fortune 1000 MS-DOS Workstations, Fortune 1000 Graphics Workstations, or IBM PC and compatible computers. For information contact Fortune Systems, 101 Twin Dolphin Drive, Redwood City, CA 94065, (415) 595-8444.



Peace In The Classroom

If the main drawback of all that great educational software is that your child (or student) is learning but the noise is driving you crazy, consider the Little Jack headphone set from Educational Software Review. It plugs into your Apple II/II+/IIe and allows the user at the keyboard to listen to the computer without disturbing others. An additional benefit for classroom use is that the set, which sells for $24.95, also includes an adapter which allows up to eight students to listen simultaneously on school headphone sets. Educational Software Review, 1400 Shattuck, Suite 774, Berkeley, CA 94709, (415) 528-2788.


READY
Smartkey 5.0e File: dos Smart: [k+] SS: [k-] 3620 Free
Definition Menu: Save Commands Describe Edit Look Record Undo Zap
Enter Edit mode to alter definition


Sksetup 5.0e Copyright (c) 1985 - FBN Software, Australia
Smartkey 5.0 Setup Utility
A Product of Software Research Technologies, Inc.
Current Settings
1 Change SMART key ⟨[K+]⟩
2 Set SuperShift key ⟨[K-]⟩
3 Set Definition Table size 5000 characters
4 Set Definition Expansion Speed # 0
5 Set Definition Window Size and Style 4 lines
6 Set User Window Size and Style 16 lines x 40 cols
7 Set printer type Plain Vanilla
8 Set on line help on/off ON
9 Save changes and quit
0 Quit without saving changes
Choice?

New Improved *SmartKey*

SmartKey Version 5 is the latest edition of the popular (and, at $49.95, popular-priced) MS-DOS program, which allows users to redefine the computer's keyboard to suit their particular needs. Features include reduced memory requirements (21K), the ability to assign up to 60,000 characters to a single key, the Super Shift feature, which allows each key to have seven separate meanings, and the ability to print a report of new definitions. *SmartKey 5* requires DOS 2.0 and above and runs on IBM PC/XT/AT/jr and compatibles. Other versions of *SmartKey* are available for CP/M-80, CP/M-86 and DEC Rainbow. Contact Software Research Technologies, 3757 Wilshire Blvd., Suite 211, Los Angeles, CA 90010.

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Because it is a CP/M based system, there are hundreds of application programs and language compilers available to run on this system. In addition, Trailing Edge has made available *Uniform*, a program that allows you to use the TPC1 with a variety of personal computer formats (including IBM PC and MSDOS) and be free to exchange data and program disks with other computers without compatibility problems.

The TPC1 is sold complete with a 90 day parts and labor warranty and is fully supported by Trailing Edge's Technical Support division. So contact us today to learn more about the power and capabilities of the TPC1, at $795.00, the supply won't last long.

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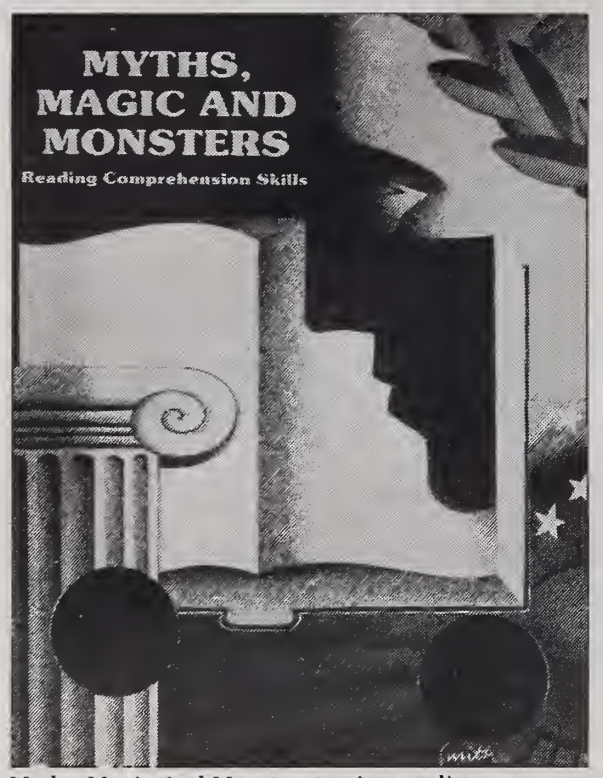
EDUCATIONAL SOFTWARE



Myths, Magic And Monsters **teaches reading comprehension with tales from ancient times.**

Myths, Magic And Monsters

Published by: *Learning Dimensions*
For: *AppleII with 48K, IBM PC with 128K, IBM PCjr, Commodore 64*
Reviewed by: *Kathy York*

How to get kids to practice basic skills and to enjoy the challenge at the same time is the reading teacher's dilemma. *Myths, Magic And Monsters* is a computerized reading program that can help motivate even the most reluctant reader. Students can have fun reading short selections and answering questions about fascinating creatures, characters, and events in mythology while improving basic reading and computer skills.

The program is recommended for middle school students who already read at about the fifth grade level, and for remedial junior high students who need additional practice in fundamental reading skills. *Myths, Magic And Monsters* provides exercises in seven major comprehension skills: recalling details and facts, identifying the speaker, sentence sequencing, using the context, interpreting figurative language, identifying the main idea and explaining cause and effect.

Parents and teachers will find this program particularly attractive because it requires little or no direct parent/teacher supervision, provides immediate feedback to the student concerning his success, provides a means for the pupil to operate at his own rate of learning, and provides a testing mode for pre- or post-testing. All directions are clear and easy to read. Also, students who need additional help with a question can press "H" for help, and an explanation of the process for arriving at the correct answer will appear on the screen.

One limitation of the program is that many of the mythological names of places and characters will be too difficult for students reading at a fifth grade level to pronounce without help. Parents and teachers who are unable to go to the computer to assist students with vocabulary can prepare a list of these troublesome words to review before students begin reading the selections.

Myths, Magic And Monsters contains exercises that provide good, solid practice in basic reading comprehension skills. Why not just plunk the child down at his desk or on the family room sofa with a workbook that drills these same skills? Anyone who has ever seen kids and computers together knows the answer. Computers motivate, excite and challenge. Parents and educators who wish to cajole youngsters into practicing basic skills should take advantage of programs such as *Myths, Magic And Monsters*.

Big Bird's Special Delivery

Published by: *CBS Software and the Children's Computer Workshop*
For: *IBM PC, PCjr, Atari and Commodore*
Price: *$39.95*
Reviewed by: *Doug Pencille*

The pre-school kids will really be able to relate to this program; it starts out just like *Sesame Street*, as Big Bird appears on screen, ready to deliver the morning mail. With the help of the child and Little Bird they must put the correct objects in the right places. The objects relate to the pictures on the

Big Bird's Special Delivery **helps toddlers match objects.**

screen. The child uses only three keys to move the objects around to the proper place. If the child has all of the objects in the correct places, the screen lights up; if not, the mistakes are pointed out.

Big Bird will provide a child with hours of fun and learning object classification skills. The use of graphics and slight animation keeps children's attention, while the familiar Muppet characters provide a comfortable setting.

BOOKS

Back To BASIC

Published by: *Addison-Wesley (1985)*
By: *John G. Kemeny and Thomas E. Kurtz*
Reviewed by: *Mike Markowitz*

Off in the woods of New Hampshire, Dartmouth College is a small, elite Ivy League university. In 1963 it launched a minor revolution when it decided that all of its students would become computer-literate. This led to the creation of a new language, the Beginner's All-purpose Symbolic Instruction Code (BASIC). *Back To BASIC* is a new book by the two professors who developed what became the most widely used computer language in the world. Kemeny and Kurtz hope that their newly launched "True BASIC" will rescue this much-abused tool from the corruption it has fallen into during the past two decades.

To any reader who learned BASIC as a keyboard mother tongue, this book will be fascinating. To any teacher who uses BASIC with students, it should be required professional reading. Kemeny and Kurtz explain the key ideas that shaped their design:

- BASIC should be an easy-to-learn general-purpose language;
- It should be expandable, with advanced features for experts;
- It should have clear, "friendly" error messages;
- It should run fast with small programs;
- It should "shield the user from the operating system."

Through many versions and revisions, the original Dartmouth BASIC has followed these principles. It has always been a "compiled" language, running on large time-sharing systems. In contrast, the corrupt versions of "Street BASIC" that run on most personal computers are "interpreted" languages. This is a crucial distinction. A compiler is a utility that translates the user's complete program into machine language before it is executed. An interpreter does the same job of translation, but on only one statement at a time. A compiler permits programs to run much faster, and it can diagnose errors before the program is executed. Early personal computers were short on memory, and their builders were often short on time and money. Interpreters are easier to code than compilers. Limited memory forced programmers to create tiny versions of BASIC that could be packed into as little as 4K of RAM. Limited memory also led to many bad programming habits, such as the lack of documentation embedded in programs, and the cramming of many statements into one line. "The ugly compromises became 'features' of the language," complain the authors.

As incompatible families of personal computers developed, incompatible "dialects" of BASIC emerged, with awkward, hardware-dependent features. It required major effort to convert programs written for Apple BASIC into Atari or IBM BASIC, for example. The great god of "upward compatibility" demanded that bad design choices made early were never corrected later, because customers came to depend on them.

Kemeny and Kurtz look towards a future when fast, powerful personal computers will make it possible to throw "Street BASIC" on the garbage heap. "We are greatly concerned," they write, "that a generation of students is growing up learning Street BASIC, an illiterate dialect of a lovely language." The True BASIC they promote is a structured language, close to the ANSI Standard BASIC that is nearing formal approval (The American National Standards Institute moves with glacial slowness when it does computer languages, because it tries to get everything right, but the technology refuses to stand still).

To users accustomed to "Street BASIC," the language that Kemeny and Kurtz describe is strangely familiar, but vastly altered. In True BASIC, line numbers are optional. Exits from the middle of a loop are permitted. Subroutines can be extensively developed and can even be "recursive" (a subroutine can "call" itself — something

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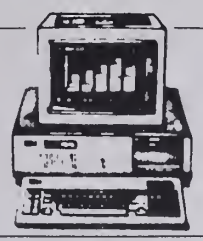

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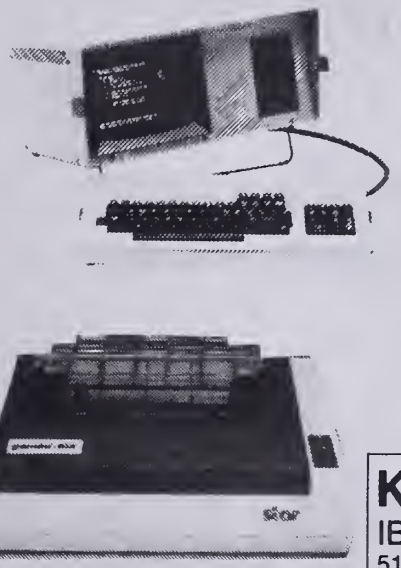

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REVIEWS

BOOKS

that is illegal in more primitive computer languages). Spacing and indenting can be used to make programs more readable (this is impossible in "Street BASIC"). The GO TO statement, hated by all computer scientists as a source of confusion and a crutch to sloppy programming, will still be permitted. Color graphics will be fully supported within BASIC as an option, along with real-time clocks and lots of other neat features.

Kemeny and Kurtz support their arguments with a variety of tiny gem-like BASIC programs (many of which work fine on my local version of Street BASIC). An eight-line program that computes the value of pi to an extreme accuracy is my favorite. Another draws a geometrically perfect American flag, and a third uses a sophisticated sorting algorithm to order long lists of numbers by size. The reader quickly realizes that this is the work of brilliant, inspired *teachers*.

Future computer historians will be grateful that Kemeny and Kurtz have set down their personal reminiscences of the origins of BASIC. Critics of the language will find that the authors agree with most of the charges that have been leveled against Street BASIC. When versions of True BASIC become available for popular home computers, we will be able to judge for ourselves.

At $12.95 for a slim paperback, *Back To BASIC* may seem a bit overpriced, but in academic publishing this is not unusual. The book is well printed on good-quality paper, with a real index. The same publisher is also bringing out *The True BASIC Reference Manual* (Addison-Wesley, 1985).

GAME SOFTWARE

The Incredible Laboratory

Published by: Sunburst Communications, Inc.
For: *Atari, Apple, and Commodore with 48K and disk drive*
Reviewed by: Doug Pencille

Does your kid want to be a scientist when he grows up? Would you rather spend the money on an educational program instead of a box of chemicals? Give *The Incredible Laboratory* a try, and save the chemicals for later.

The program is more of a game than a strict learning process, and will offer hours of fun for both kids and adults. By selecting various ingredients from the list provided on the screen the user builds a unique monster. When the ingredients are changed, different parts of the monster are also. There are three levels of play (novice, apprentice and scientist) with "challenge" and "play" modes for each. The play mode displays a list of chemicals and a boiling beaker. The chemicals are selected and the beaker changes colors. When the process is finished, the chemicals vaporize and a monster appears. In the challenge mode you have an opponent, and upon completion three monsters appear. Each player then selects the monster they think they created; one will be an imposter.

The Incredible Laboratory helps kids to practice their skill-based problem solving methods and to analyze situations, gather information, identify patterns and focus on the parts of a problem rather than the whole. The recommended age for play is 11 years to adult; however, my child of 6 years has spent countless hours discovering ways to create a new monster. Then again, he does want to be a scientist.

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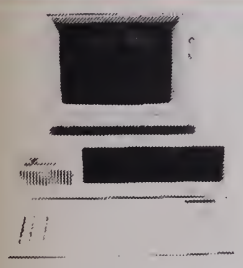

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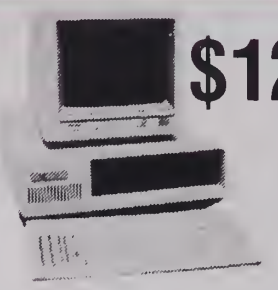

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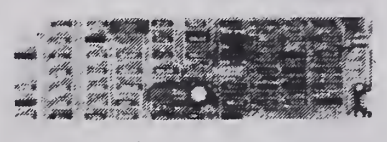

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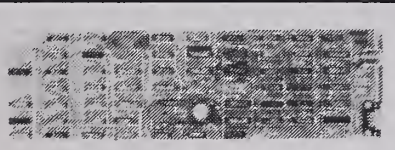

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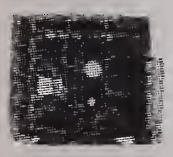

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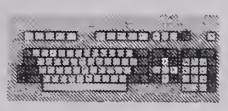

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REVIEWS

GAME SOFTWARE

Mindwheel

Published by: *Synapse/Broderbund*
Written by: *Robert Pinsky, Steve Hales, William Mantaga*
For: *IBM PC, PCjr, XT*
Reviewed by: *Steve Cummings*
Price: *$44.95*

If you're a fan of adventure games and fantasy/sci-fi stories, you'll want to have a turn at *Mindwheel*, one of Synapse/Broderbund's new series of "Electronic Novels." As fiction, *Mindwheel* is much more a comic book than a novel, but it is a sophisticated text adventure that suggests the possibilities for interactive literature.

The plot of *Mindwheel* runs something like this: centuries in the future, the earth is on the brink of a final cataclysm. Little hope remains, but a brilliant eccentric, Dr. Virgil, has discovered a way to reach into the neuro-electronic matrix. There reside impressions of the brainwave patterns of all who have lived. You, the reader/player of *Mindwheel*, have been chosen to travel in the matrix through echoes of four of the world's most powerful minds: an assasinated rock star and peace activist who brought the Dodgers back to Brooklyn; a genocidal dictator; a female physicist who created the doomsday weapons that defeated the tyrant but that now threaten to annihilate life; and a latter-day Shakespeare.

Somewhere in this labyrinthine mental terrain is the secret of how to contact the Cave Master, an archetypal being who invented the hallmarks of early human technology and culture: the lever, the flint blade, cave paintings, and the group chant. The Cave Master's achievements were inspired by a small object, the Wheel of Wisdom, containing "the secret of the planet's best values." The Wheel is the goal of your journey. Only if you can bring it back will the world survive.

It's not clear how Dr. Virgil plans to save the world once you bring him the wheel, but you won't have time to waste on that trifling concern. Your quest brings you a relentless series of challenges in a constantly changing dreamworld. One moment you're on stage at a rock concert about to be attacked by a thug in suit and tie, and the next you're hanging out with a bunch of derelict winos who turn out to be players from the old Brooklyn Dodgers. A confrontation with a caged winged woman on a crystal staircase gives way to your capture by a reptilian military officer on a snowy street. You must face many violent threats, and the gore is depicted graphically, but you must also solve riddles and complete poems to maintain your progress. The scenarios and characters are described in plentiful and often bizarre detail, and rich sensory imagery embellishes the plot. The events you experience and the responses of other characters change each time you play the game. Expect to reenter Dr. Virgil's matrix many times; you'll die a variety of horrible deaths as you learn your way around the surreal environment.

The program lets you have complex and fairly natural interactions with the unfolding drama, with a good-sized vocabulary of commands. You can move around in all directions, and you can smell, touch, hit, kiss, kick, or try to kill characters or objects. You can pick up or give away objects, and sing or play musical instruments. You can also influence the pace at which characters and dramatic elements flow in and out of the story. The most intriguing capability, though, is the way you

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can speak to each character you meet individually to ask questions, beg for help, and so forth.

Mindwheel is not classic literature — character development is sketchy, the plot is roughly drawn and inconsistent, and the writing is often imprecise and sophomoric. But *Mindwheel* obviously doesn't take itself seriously. There are innumerable throw-away lines like: "You human glitch," curses the thug, "would you like a ketchup nose?" And for Dodger fans, "They used to call me Gil," speaks the old wino. "Yes, I was the noble Gil Hodges once. But now I am a remnant, a neuro-electronic fact isolated by your Doctor Virgil." The hardback book that accompanies the program disk sets the background of the global crisis fairly straightforwardly, but disintegrates into silliness before long. Dr. Virgil reveals to an interviewer that several of his test subjects "have reported a lasting sensation of immersion in a substance like scrambled eggs" after their forays into the matrix. We're also treated to an account of one man's harrowing experience in the consciousness of Henry Ford and a warning to steer clear of Henny Youngman's etheric remains.

While it's not literary high art, *Mindwheel* hints at the potential of interactive fiction. Until a software masterpiece comes along, *Mindwheel* may keep you occupied for many low-brow hours.

Felony!

Published by: *CBS Software Inc. (1984)*
Written by: *Charles Sanford Goldstein*
For: *Apple II, IBM PC and Commodore 64 (Apple II versions require 1 disk drive and 48K)*
List price: *$34.95*
Reviewed by: *Mike Markowitz*

If you like *CLUE*, the old mystery board game, you will like *Felony!*, a new computer game from CBS Software. The game is set in the wealthy, corrupt suburban town of Huxley (a dead ringer for Great Neck, New York, or possibly Wilton, Connecticut). The principal local growth industry seems to be homicide. You and up to three other police officers must struggle against the clock, each other and a tangled web of misleading clues to solve a series of gruesome murders. For violence and "adult situations" this game would earn an "R" rating if it were a movie. For young gamers, raised on a steady diet of *Hill Street Blues* and *Miami Vice*, however, there will be few surprises here.

CBS Software has an interesting approach to copy-protection. They pack so many neat things (besides the floppy disk) into the package that it is pointless or impossible to use the product by just pirating the disk. This "value-added" packaging is something more publishers ought to emulate. In the case of *Felony!* the package includes a pad of data-recording forms, a game manual, a thick book of clues, and a booklet of solutions that can only be read through a sheet of special red cellophane that is provided.

There are twelve cases, selected from a dramatic "ticking clock" graphic menu that appears when the game is booted up. The players (one to four people) are asked to input their names. The system keeps track of player turns and "sleuth ratings." You "win" by attaining the highest rating: "Clairvoyant Cop—only ESP (or cheating) could explain your phenomenal success in solving this crime. Have you ever considered running for public office?"

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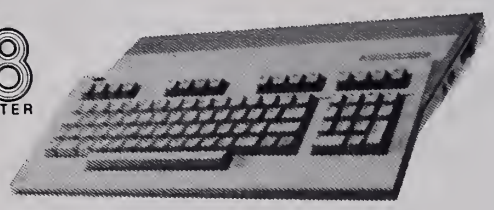

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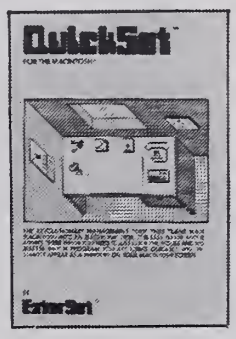

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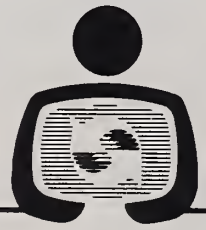

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REVIEWS

GAME SOFTWARE

The course of play involves moving to various locations in the town, questioning suspects, and gathering evidence. All actions are executed as menu choices. Feedback is provided by strings of three-digit references to entries in the Clue Book. When you have gathered enough evidence to "solve" the crime, you interrupt the program and turn to the Solutions booklet. This all makes for a rather open-ended, socially interactive game that should have wide appeal beyond the ranks of computer game nerds. On the other hand, it is hard to understand why a computer was necessary for these little exercises in deductive logic. The game design does not exploit the power of the hardware or the software. There is too much paper to shuffle through and too many pages to flip. Computers were *invented* to eliminate all this stuff! Although the game is partially a race against time, no clock is displayed on the screen. This sort of thing is easy to program, and greatly improves the "feel" of the game. The only useful graphics in *Felony!* are the map of the town and the startup menu.

Potential buyers should also consider the limited staying power of a game that has only twelve shots. Once each solution has been revealed, the game is pretty much dead, and you might as well pass it along to another set of players. It would not have required a programming genius or a Cray-1 supercomputer to come up with a mystery game that would randomly generate new cases and solutions for each playing. Such a game would never become stale. Twelve plays for $34.95 works out to a little under three dollars a game. This is about what you would pay for a mystery paperback novel, however, and a book is not interactive. For gamers who enjoyed the earlier *Murder By The Dozen* from the same publisher, *Felony!* will be a repeat treat. For the software critic, it is something of a disappointment.

Hellcat Ace and Spitfire Ace

Published by: *MicroProse Software*
For: *IBM PC and PCjr, color graphics recommended*
Reviewed by: *Doug Pencille*

Newly arrived on the war game software scene are two entries by MicroProse, *Hellcat Ace* and *Spitfire Ace*. Both are three-dimensional flying simulations of battles from World War II. The player assumes the cockpit position of the fighter plane in battle against the computer-controlled enemy planes.

Hellcat Ace provides fifteen flying missions over the Pacific in World War II, ranging from Pearl Harbor to Iwo Jima. *Spitfire Ace* has fifteen of its own flying battles, located over Europe during the same time period, to include The Blitz, Dunkirk and D-Day.

The game play is fast-paced and requires sharp hand-to-eye coordination, especially if you are using the keyboard instead of a game controller. The object is to establish machine gun firing positions on the enemy. The computer is controlling the position of the target and has an awesome ability to outmaneuver you. After some practice, you can become efficient with aerial maneuvers and aerobatics. The player will be so preoccupied with game control that the limited animation and screen graphics will usually go unnoticed.

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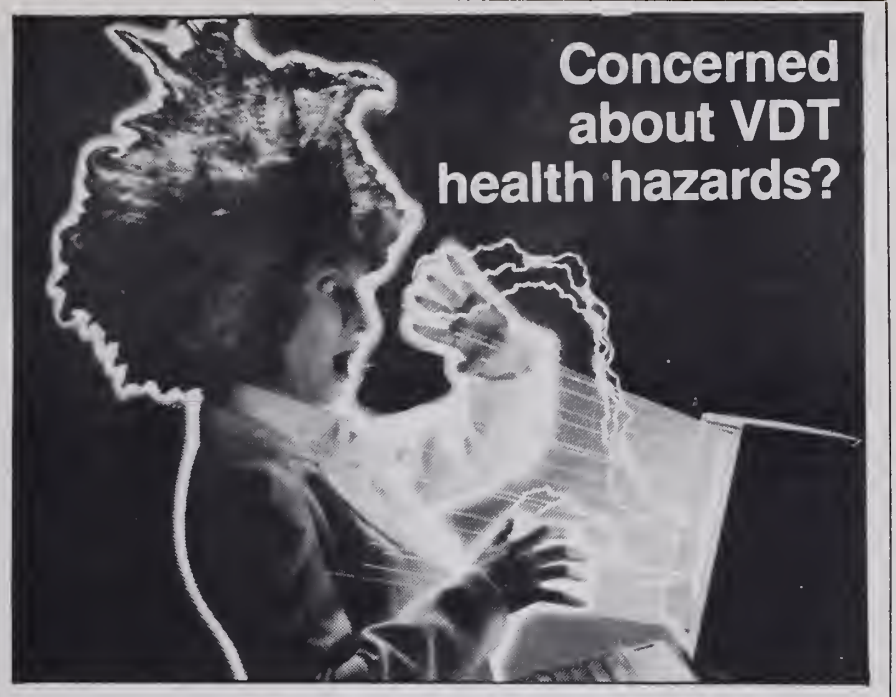

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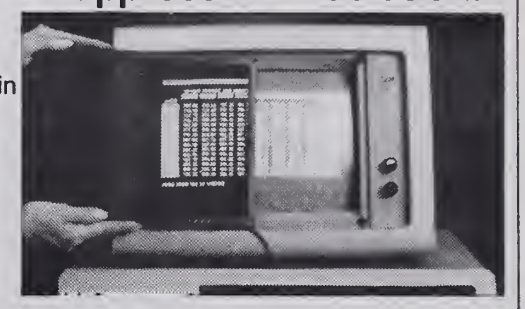

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USER GROUP NETWORK

By Mary Eisenhart

PHOTO: MARY EISENHART

Arthur Abraham of A-Squad Systems (l) explains some of the fine points of the Amiga Eye to an interested bystander at the SF Commodore User Group meeting

Hot topic at Bay Area user group meetings this month: **Arf, Arf** a character at some dubious stage of evolution whose latest project is putting some enticing-looking program on various bulletin boards. When the luckless user downloads the program (which has been appearing in assorted guises on CompuServe and local boards), it erases all the data stored on the disk and displays a message to the effect of "**Arf, arf, I gotcha.**" Sysops are strongly recommending that you download programs onto a blank diskette (or one filled with stuff you don't care about) and check them out before adding them to your collection. One unfortunate is said to have lost the entire contents of his hard disk to Arf, Arf.

On a more cheerful note, last month we had the pleasure of a surprise visit from **Maria Luisa Faggian** and **Stefano Minotto** of Padua, Italy. Stefano's the president of Padua's Apple user group, the **Golden Apple Club**, and the duo was over here on assignment to check out the US Apple scene for an Italian computer magazine. User group meetings being high on their agenda, we went off to the weekly gathering of **BMUG** (the **Berkeley Macintosh User Group**), where president **Reese Jones** was expounding on the fine points of setting up the perfect system on your Mac and debate was raging on whether the **Amiga** was the Next Big Thing or the Turkey Of The Year.

Stefano says there's a dire shortage of public domain software among European user groups generally, and the Golden Applers would be very interested in corresponding with US groups to exchange information and software. Apple/Mac enthusiasts (groups or individuals) interested in acquiring foreign contacts are invited to write to Stefano Minotto, Golden Apple Club, Riviera Tiso da Camposanpiero, 26,— 35100 Padua, Italy.

The July meeting of the **San Francisco Commodore Users Group** attracted an SRO crowd — not only was the fabled Amiga putting in an appearance, but the folks from Oakland's **A-Squared Systems** were showing off their **Amiga Eye.** Members watched with chagrin and glee as their digitized images cavorted across the screen and were frozen, edited, superimposed and otherwise manipulated. (For more on the Amiga Eye, see the Commodore column this issue by **Matthew Leeds,** who was presiding over the gathering in the absence of ailing SFCUG president **Roger Tierce.**)

"You don't have to predict the future, you just have to *make* the future," exhorted **Lee Felsenstein** at the August meeting of the hallowed **Homebrew Computer Club.** All this was by way of presenting the Hackintosh Project (the erstwhile Hacker's Mac), the aim of which is to produce an open-architecture, completely reverse-engineerable Mactype machine. The project has been subdivided into Hardware, Software, and System sub-groups, and input is cordially invited. The Hackintosh project continues as part of the **Hackers Conference** on **The WELL,** which can be reached at (415) 332-6106 (modem) or (415) 332-4334 (voice, for general information).

Word comes from **Ron Bastone** of Hollywood that the **Mac-Hollywood** chapter of the **Los Angeles Macintosh Group** has seceded and renamed itself **á LA Mac.** Bastone says that the move was made to allow for smaller, more manageable meetings and to facilitate participation and networking. **á LA Mac** will hold three monthly meetings at various LA locations in addition to quarterly large-scale meetings. For more info contact Ron at (213) 462-2860 or write á LA Mac, P.O. Box 27429, Los Angeles, CA 90027.

HUG, the **Hollywood User Group** for **Commodore** computers, has changed its monthly meeting address. Meetings are now on the second Saturday of the month at Plummer Park, Conference Room, 7377 Santa Monica Blvd., three blocks west of La Brea. For more information, write HUG, P.O. Box 38313, Hollywood, CA 90038 or call (213) 463-8973 (voice) or (213) 874-8256 (modem).

Edwin Rutsch of San Francisco is forming an **XT Compatible Club** and invites inquiries. He says the club is being formed "to support the new IBM XT compatibles, especially the homemade ones which cost around $900 to build yourself. The first meeting place and time will be announced once enough interest in the group is show." So all you XT-compatible enthusiast and do-it-yourselfers, contact Edwin at (415) 688-0913, or write him at 58 Clayton #4, San Francisco, CA 94117.

Orange County user groups take note: **Our Hero,** a sandwich shop in Anaheim, is offering its facilities as a meeting place for interested groups. As an added inducement, the enterprising **James,** who runs the place, is offering a third hero sandwich free to those who buy two. Our Hero is open from 10–8 every day, and located at 1711 W. Ball Road. If the prospect of meeting and munching sounds good to your group, give James a call at (714) 533-3030.

Through channels best described as circuitous comes a letter from **Klaus and Gretchen Bender** of Gettysburg, PA regarding their BBS, **The Dead Board.** The title refers not to the board's deceased state but to its purpose, namely information exchange, tape trading and general networking among Grateful Dead enthusiasts. The parameters of this board are 8 bit word, 1 stop bit, no parity and 300 baud. The Dead Board operates 24 hours a day and can be accessed at (717) 334-8680. (If any California Deadheads are operating boards, please avail yourselves of the coupon in this issue to send us your FREE listing. This offer also applies to Springsteen fans, Beethoven aficionados, Wagnerites, Duranies, and anybody else who wants a BBS, musical or otherwise, publicized.)

SoCal **Apple** users will probably want to know that **AppleFest '85** will be held September 13–15 at the Long Beach Convention and Entertainment Center. This is a comprehensive trade show featuring Apple II and Macintosh products, software and third-party hardware, as well as seminars and hands-on training sessions. Business, education and home applications will all be in evidence. For information on AppleFest contact **Marcia Hanscome** at (213) 434-6806 and (213) 556-4410.

MicroTimes will be at various shows and conventions this month, so be sure to stop by, say hello and let us know what you'd like to see in the magazine. We'll be at AppleFest in Long Beach and the Byte show in San Francisco September 27–29.

Calendar Of Events

September 11 Open house, Northeastern University, 5 – 8 pm, 2620 Augustine St., Suite 170, Santa Clara. Classes in professional development for those in technical fields; session begins September 23.

September 13 – 15 AppleFest '85, Long Beach Convention and Entertainment Center. (213) 434-6806 for information.

September 14 Computer Swap, Santa Clara County Fairgrounds, San Jose. (415) 366-9162 for info.

September 16 – 22 *dBase III* programming classes, taught by Bill Amatneek, evening and weekend sessions at Mill Valley Howard Johnson's. Phone (415) 388-8024.

September 19 "An Introduction to Microcomputers Using the IBM Personal Computer," and other courses including beginning BASIC, LISP, and PASCAL, with advanced class in Assembly Language, San Francisco State University Extension, (415) 469-1373.

September 20 – 21 FORTH Interest Group Convention, Rickey's Hyatt House, Palo Alto. (408) 277-0668.

September 27 – 29 BYTE Computer Show, Brooks Hall, San Francisco. (617) 449-6600 for information.

September 28 — 29 Golden Gate Computer Expo, Oakland Coliseum, 10 am – 5 pm. (415) 459-1998.

October 5 "Welcome to Computer Graphics," introductory seminar at Computer Arts Institute, San Anselmo. Registration deadline September 23, fee $25. (415) 459-3852 for information many other courses available.

October 5 Computer Swap, LA County Fairgrounds, Pomona. (408) 266-6768, (408) 978-SWAP for info.

October 18 – 20 Santa Rosa Computer Festival, Technology for Business and Education, Luther Burbank Center, Santa Rosa. Free seminars. Contact Michael Judah, (707) 545-1414 or Ron Person, (707) 579-2603.

And, until we meet again next month, address all relevant correspondence to MicroTimes User Group Network, 5951 Canning St., Oakland, CA 94609. □

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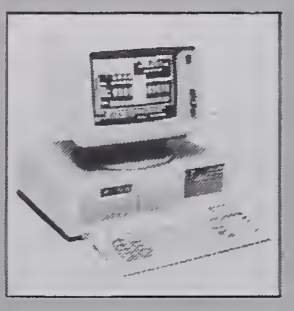

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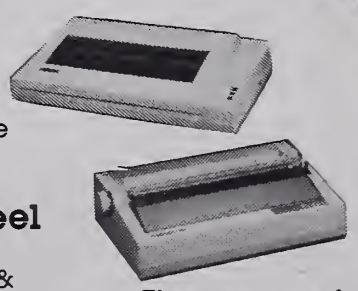

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MBL Referral System BBS A board dedicated to personal messages and advertising listings. Modem: (415) 444-6362; 6 pm - 6 am weekdays, 24 hours weekends. MBLRS BBS users meeting Saturdays, 5:30 pm, 1555 Lakeside Drive, Suite 23, Oakland. Call (415) 444-3033 for info, ask for Mel.

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MCTUG (formerly Marin County TRS-80 Users' Group). MS-DOS, CP/M and Tandy users group. Meets 7:30 pm on the first Monday of the month at the Larkspur Masonic Lodge, 1122 Magnolia Ave., Larkspur. Contact Dr. Frank Hovell, 907 Sprucewood Court, Petaluma, CA 94952, (707) 762-5740.

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San Francisco Computer Society (Formerly the San Francisco First Osborne Group). A society for users of portable computers and/or the CP/M operating system. P.O. Box 783, San Francisco, CA 94101-0783. Meetings on fourth Thursday of the month, St. Aidan's Church, Diamond Heights and Goldmine Dr. in SF. All are invited. Dues $10/yr.

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MicroPro Users Group of America. National group with over 200 members worldwide. Dedicated to supporting MicroPro products, especially WordStar and InfoStar, for any hardware. c/o Procyon Associates, 140 Riverside Drive, New York, NY 10024. (212) 595-4811.

Franklin Users Group International. Supporting users of II, II+, Franklins, and all compatibles. We support all members with a monthly newsletter, "The Clone Ace," a growing public domain library and personal attention. Membership $15.00 a year. Contact Douglas M. Trueman, EastWind Apt. L77, Tecumseh, MO 65760.

68796 Hackers. 68796 (68000 + IEEE-796) is the only users group supporting hobbyists constructing WICAT 150/Mini-system, Multibus, and 16/32 bit systems. In addition to the 68796 Hacker's Newsletter, we are putting together a disk library. Dues $20/year. Contact Victor R. Frank, 12450 Skyline Blvd., Woodside, CA 94062. (415) 851-7031.

Golden Apple Club, Apple II and Macintosh. Contact Stefano Minotto, Golden Apple Club, Riviera Tiso da Camposanpiero, 26, — 35100 Padua, Italy.

USER GROUPS

ACTRIX

ACTRIX Computer Enthuslast Society. Membership ($20/yr) provides public domain software, group rates, discounts for owners of Actrix/Access Matrix microcomputers. Meetings at Sunnyvale Community Center, last Wednesday of the month, 7 pm. Contact K. Edward Lynch, 1405 Phelps Ave. #29, San Jose 95117, (408) 756-5104, for more information.

ADAM

California's Adam Users' Group. For a sample issue of the newsletter and a hardware-software catalog free, send your address to CAUG, 1643 Beach St., San Francisco, CA 94123.

APPLE

San Francisco Apple Core Meets every third Saturday of the month at Fort Mason, Bldg. C, Room 100 at 10 am. New products and innovations are featured for Apple II, Apple III, Macintosh and Lisa. Public domain library, SIGs, tech help, newsletter. $20 per year membership. Info: SF Apple Core, 1515 Sloat Blvd., Suite 2, San Francisco, CA 94132. (415) 566-2342 (voice), (415) 474-8608 (BBS/modem).

SPCA (Society For The Prevention of Cruelty To Apples) The Society for the Prevention of Cruelty to Apples is a club for owners of Apple, Apple-compatible (Franklin, etc.) and Macintosh personal computers. It meets at 7:30 pm on the last Wednesday of the month at Thornton Jr. High School, on Thornton Ave. at Dusterberry, in Fremont. Contact SPCA Publicity Chairman Milton Buck, 5246 Channel Drive, Newark, or call (415) 794-2822 for more info.

Association of Apple 32 Users Macintosh, Lisa. An association of "knowledge workers" who wish to share information on products, applications, and events. User-developed, non-copyrighted software, SIGS, newsletter. P.O. Box 634, Santa Clara, CA 95052.

Apple Eeters Users Group. Apple II users group meets monthly (first Thursday) at Hayward Software Centre. Operates, with San Leandro H.S., a 24 hr. free BBS at (415) 577-3409. Meetings 22406 Foothill Blvd., Hayward. Contact Bob Shayler, 2200 Bancroft Ave., San Leandro, CA 94577, for more information.

Pen Apple. Pen Apple Users Group meets 2nd Thursday of each month at AMPEX cafeteria, 7:30 pm, Redwood City. Draco Bulletin Board. Contact Karl Shores (415) 366-0339.

Diablo Valley Apple Users. Meets 3rd Friday of each month at EMS, 2371 Stanwell Dr., Concord, at 7 pm. Contact Lynn Hart, P.O. Box 5031, Concord, CA 94524, (415) 798-9281.

South Peninsula Apple Computer Enthusiasts (c/o David Harris, P.O. Box 1257, Palo Alto, CA 94302) meets near the Varian Credit Union, Bldg. 4C, 611 Hansen Way, Palo Alto, at 7:30 pm on the first Tuesday of every month to exchange information about available hardware, software, events, publications, and methods on Apples, and to encourage collaboration on projects. Call (415) 856-9126 — answering machine takes 30-second messages.

ASHTON-TATE

Framework/Editor Bay Area Users Group (FREDBUG) Purpose of the group is to share programming and applications techniques under FRAMEWORK for the business and technical professional. Call for info: Rudi Wiedemann, (408) 730-4159.

San Francisco dBase User Group For advanced users and programmers. Meets once per month. Membership required for attendance. Contact Frank A. De Coster, 1100 Gough St., San Francisco, CA 94109, (415) 474-6693.

dBase Users Group. Meets 2nd Thursday each month at Softwaire Center, 1975 Diamond Blvd. #C220, Concord (Willows Shopping Center), 7:30-9 pm. Contact Cyndy Kolnick (415) 235-7317 for information.

ATARI

C.O.A.S.T. (California Oakland Atari S.T.) Bay Area's first ST only user group. Fun, information, and more. Call for more info: Axel Olmos, P.O. Box 20481, Piedmont Station, Oakland, 94620, (415) 658-3159.

ABACUS (Atari Bay Area Computer Users Society) All ATARI users or prospective users are welcome. Membership ($15/year) provides public domain software, low cost blank disks, monthly newsletter, group prices on hardware and software, help from experts, low cost classes for beginners. Meetings first Saturday of the month, Fort Mason, SF, Room 300, Bldg. C, 10 am-2 pm. Contact Bill Zinn, P.O. Box 1823, Mill Valley, CA 94941. (415) 753-8483.

A.C.M.E. (Atari Computer — Marin Enthusiasts) Meets monthly in Marin, third Thursday evening monthly from 7 pm on. Gallinas School, 177 N. San Pedro Rd., San Rafael. Contact Bruce Frank, (415) 435-6020, P.O. Box 222, Tiburon, CA 94920.

Diablo Valley Atari Computer Enthusiasts (D.A.C.E.) Contact Richard C. Foster, Secretary, 3760 Lindero Drive, Concord, CA 94519.

Bay Aree Atari Users Group We have a 24-hour BBS at (408) 578-2390. Meetings at Dysan Auditorium, 4201 Patrick Henry Drive, Santa Clara, CA 95050, first Monday of the month. Contact Frank Nagle, P.O. Box 50459, Palo Alto, CA 94303, (415) 940-1323 for more info.

San Leendro Computer Club Although open to all computer users, this group is primarily oriented to Atari computer owners. Our club is considered one of the best in the country, worthy of consideration by both novices and experts. Meetings 1st Tuesday of the month at San Leandro Community Library, 300 Estudillo Ave., San Leandro, CA. Contact Phil Mitchell, P.O. Box 1525, San Leandro, CA 94577-0152 for more info, or call (415) 351-2208.

ATTACHE

Attache UNL Otrona may be dead, but the Attache Users News Letter Lives ONII Contact Jim Ayers, 301 Poplar St., Mill Valley, CA 94941. (415) 388-4805. Meetings 7:30 pm, 2nd Wednesday.

BASIS

Bay BUG Basis 108 Users meet every first Friday of the month at College of Alameda Computer Room, 7:30 pm. Contact Roger Bernhardt, 536 Mission, San Francisco or call (415) 221-0262 for more information.

CASIO

Casio Research Project. Discussion and collaboration; creation of plug-in expansion board using VLSI chip. Share programs. Meetings TBA. Contact Julius M. Zebrowski, (415) 969-9458.

COMMODORE

San Francisco Commodore Users Group Public domain library, classes, tech help, in depth demonstrations, monthly newsletters, Epromer, savings on purchases, all this and more. BBS # (415) 567-5046 300 baud. Meeting address 256 Laguna Honda Blvd., San Francisco, 3rd Tuesday of the month, 7:30 pm. Contact Roger Tierce, 278 27th Ave. # 102, SF, CA 94121, (415) 387-0225.

20/64 Computer Users Group — San Jose Meets first Sunday of the month at the Theatre Building, San Jose City College, from 6 to 9 pm. (Donations requested to help defray cost of renting meeting space.) Call Herb Miller, (408) 253-2064 for more info, or write P.O. Box 18473, San Jose 95158.

20/64 Computer Users Group — San Jose North Valley Meets second Saturday of the month at the second floor Community Room of Montgomery Ward's, Capitol and McKee Roads, San Jose, from 10 am to noon. (408) 253-2064.

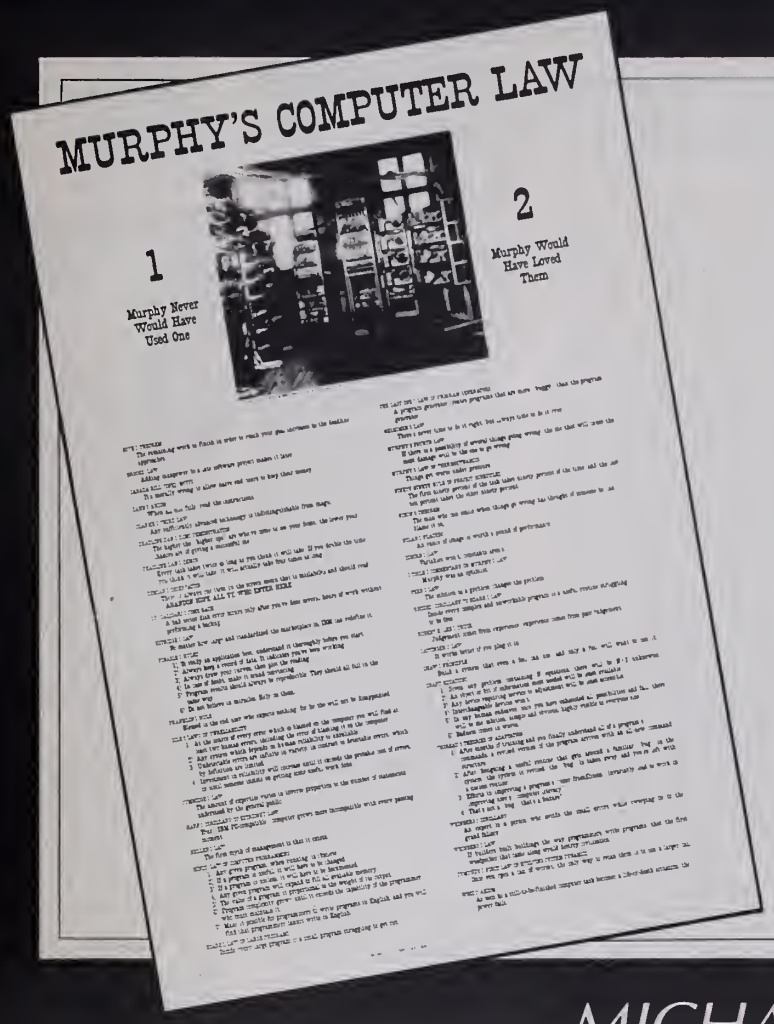
20/64 Club The Cupertino chapter of the 20/64 club for Commodore users meets the second Sunday of each month, Cupertino Public Library, 6 pm. Contact Rex Ackerman, P.O. Box 61063, Sunnyvale, CA 94086. Phone (408) 245-7270.

20/64 Computer Users Group — Campbell Meets the fourth Tuesday of the month at the Campbell Public Library, 70 North Central Avenue, Campbell, from 6:30 to 9:30 pm. (408) 253-2064.

20/64 Computer Users Group — Gilroy Meets the second Wednesday of the month at the Gilroy Public Library, 7397 Rosana Street, Gilroy, from 7 to 9 pm. (408) 253-2064.

Diablo Valley Commodore Users Group Meetings Contra Costa Water District Auditorium, 1331 Concord Ave., Concord, CA, second Thursday of month at 7:30 pm. Write DVCUG, P.O. Box 27155, Concord, CA 94527, or call (415) 838-2838 for more info.

Nepe Valley Commodore Computer Club Meets first and third Mondays, 7:30 pm, at Northwood Elementary School, 2214 Berk St., Napa. Take Redwood Road to Dover St. to Berk St. Contact President Dick Bull (707) 257-3773 or vice-president Roger Pruym (707) 253-1690 for more info.



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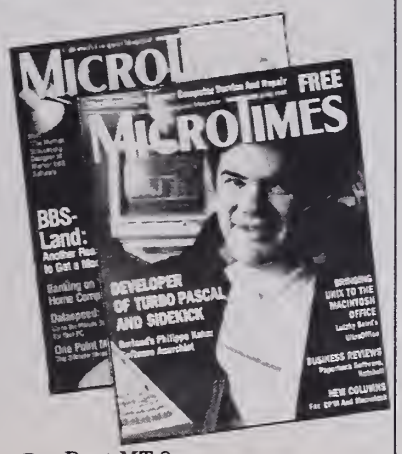

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USER GROUP NETWORK

COMMODORE

Lake County Commodore Users Group Contact Al Reuss, P.O. Box 388, Clearlake, CA 95422.

Marin Commodore Club Meets at Redwood High School, Corte Madera. Visitors welcome. Contact Elmer Johnson for information: 665 Las Colindas, San Rafael, (415) 479-0426.

PUG of the Silicon Valley Commodore 64 (PETs, 8032s, 2001s also). Friendly computer group established back in 1977 with a very extensive disk library. No dues, donations only. Bring your machines to the meeting or use club dual disk drive to copy programs. Meets at cafeteria, Ford Aerospace Bldg. #3, 3939 Fabian Way, Palo Alto, CA 94303, 1st Wednesdays of the month, 7-10 pm. Contact Marvin Vander Kooi, (408) 446-1936.

Peninsula Commodore User Group Public domain library, demonstrations, user help, newsletter. Membership is $25 per year. Non-members pay $2 at door. Meetings are 3rd Tuesday of each month. Meeting place is the Church of the Good Shepherd Hall, 1300 5th Ave., Belmont (across from city hall). For more info call (415) 595-5452 between 9 am and 6 pm, or call our BBS at the same number after 6 pm.

The Commodore Connection. Newsletter, BBS, public domain disks, dealer support and more. Approved member of Commodore World. Call (415) 458-3318 8 am - 8 pm or 8 pm - 8 am for the BBS. Meetings 1st and 3rd Mondays, Neighborhood Center, Civic Ave., Pittsburg, CA, 7:30 pm.

Commodore User's Group of Hayward. The CUG of Hayward meets the first Saturday of each month from 3 to 5 pm at the Commodore Computer Center located at 22521 2nd St., Hayward. Call (415) 886-1916 evenings between 5 - 8 pm or (415) 537-1323 days bvetween 10 am and 5 pm.

NBUG (North Bay Users Group). Contact Jim Stephens, president, 124 Delgado St., Vallejo, CA 94591, or write P.O. Box 7116, Vallejo, CA 94590.

COMPAQ

SF Compaq. A Compaq user's group is being forming in the SF Bay Area. Contact David J. Blow, 439 Hoffman Ave., SF, CA 94114, (415) 221-2764.

CROMEMCO

Silicon Valley Cromemco Users Meets 4th Tuesday of the month at MCM Enterprises. 215 Hamilton Avenue, Palo Alto, CA. Call Ken Brown at (415) 327-8080 for details.

EAGLE

Eagle Computer Users Group (ECUG) Forum for exchange of info and ideas relating to Eagle Computers. Meetings and classes in WP, Data Base, Modems, CP/M, MS/DOS, etc. Meetings at Mercury Savings and Loan, 859 Blossom Hill Road, San Jose, fourth Monday of the month, 7 - 9 pm. Contact David Meisman, P.O. Box 3381, Saratoga, CA 95070, (408) 973-1254/973-1460.

Screaming Eagles User Group for 8 bit CP/M machines. Quarterly newsletter, public domain disk. Meet on CompuServe (PCS 54). $10/year individual, $20/year business. 101 Parnassus #1, San Francisco, CA 94117. (Voice) (415) 661-4362.

ENABLE

ENABLE Users' Group, Supporting users of Enable, the integrated software system. Monthly meetings and newsletters. Registration and year's dues: $25.00. Loaner copy available for trial. Meetings at Fort Mason Center, SF. Time and date vary—write for sample newsletter, or call: Lion Goodman, 38 Glen Dr., Mill Valley, CA 94941, (415) 381-3300.

EPSON

Bay Area Epson Salts — Epson 125 Del Centro, Millbrae, CA 94030, (415) 697-0567.

Epson Users of San Francisco Bay Area Epson group has nationally circulated newsletter *Valnews*: 400 members — mostly QX-10 owners, growing software library. Meetings focus on mutual support. Mainly Valdocs and other applications. Meetings first Thursdays. 7 p.m. Fort Mason Center, Bldg. C, Room 205, San Francisco. Contact Alan Magary, 904 Irving St., Suite 271, San Francisco CA 94122, (415) 661-9270.

Napa Valley Epson Users Group 1307 Hestia Way, Napa, CA 94558, (707) 253-8727.

FORTH

FORTH Interest Group, Berkeley Chapter. Meets 2nd Saturday of the month at 1 pm, 10 Evans Hall, UC Berkeley. Contact Mike Perry, (415) 644-3421.

FORTH Interest Group, Monterey/Salinas Chapter. Contact Bud Devins, (408) 633-3253.

FORTH Interest Group, Sacramento Chapter. Meets 2nd Tuesday of the month, 7 pm, 170B 59th St., Room C. Contact Tom Ghormley (916) 444-7775.

FORTH Interest Group, Bay Area Chapter. Meets 4th Saturday of the month, 10 am advanced, 1 pm beginning, at ABC Christian School Auditorium, Dartmouth and San Carlos Ave., San Carlos (408) 277-0668.

FORTH Interest Group, Stockton chapter. Contact Doug Dillon (209) 931-2448.

GAVILAN

Gavilan Users Group. BBS (408) 978-DATA 300/1200. Meeting 2nd Thursday 7:30 pm, 10250 De Anza Blvd., Cupertino. Info call Bob Brown (408) 379-2774.

HEATHKIT

San Jose Heathkit Users Group. Meets first Wednesday at 7 pm at the Heathkit store on South Bascom Ave. in Campbell.

IBM

San Francisco PC Users Group Largest SF group focusing on IBM and compatibles. Over 150 disks of public domain software, excellent monthly newsletter. 800+ members, $25/year. Write 4444 Geary Blvd., Suite 33, San Francisco, CA 94118.

South County PC Users Group Meetings held second Thursday of each month, at Software Center, 22406 Foothill Blvd., Hayward, CA. Public Domain club disks, newsletter and help on MS-DOS problems. Contact Debra Taylor, P.O. Box 7656, Fremont CA 94537-7656 for more info, or call (415) 276-5111.

Sacramento IBM-PC Users Group. P.O. Box 685, Citrus Heights, CA 95610. Contact George W. Lefler (916) 988-2274.

SVCS (Silicon Valley Computer Society). IBM users group. Meets second Wednesday at 7 pm at the Westinghouse auditorium located on the corner of Duane and Britton Aves., In Sunnyvale.

IBM

California PC LAN Users Group, 1625 The Alameda, Suite 511, San Jose, CA 95126. (408) 289-1711.

KAYPRO

Santa Rosa KUG Owners of Kaypro computers or CP/M systems are invited to join the SRKUG. We conduct seminars and software instruction/training. Come join the fun. Meetings 3rd Thursdays of the month at 7 pm. Call for meeting address: James Daniels, 1029 Damon Court, Santa Rosa, CA 95401. (707) 575-8149.

BAKUP (Bay Area Kaypro Users and Programmers). One of largest Kaypro user groups in country. Meets 3rd Tuesday of month, 7:30 pm. We support our RBBS/RCPM for members, publish a monthly newsletter, have a 40 volume software library, and a lot of fellow KP'ers! Write for info, $10 per year to join: Membership Coordinator, P.O. Box 20181, Oakland, CA 94620.

KAYFUN Peninsula Kaypro Users Group meets second Thursday of every month at 7:30 pm in the ground floor social room, 222 Laurel St., San Carlos. Bimonthly newsletter, public domain software library, and publication library. Membership $12 per year. Every third meeting a Free Forum night dedicated to individual help. Contact Larry Welling, 222 Laurel St. #310, San Carlos, CA 94070, (415) 593-9981.

South Bay Kaypro Users Group (SBKUG). Meetings at 10400 Torre Ave., Cupertino. We have an extensive library of public domain software, including over 200 diskettes of the SIG/M library. The floor is open for questions at each meeting, and we welcome new members at all levels of ability. Bring your machine, or at least your diskettes. For meeting night call Chuck Hansen at (408) 257-5244, or write P.O. Box 390088, Mountain View, CA 94039-0088.

MACINTOSH

EBMUG (East Bay Macintosh User's Group) Friendly, informal. Public domain software and computer book library. Information exchange. Speakers. Product discounts. Free admission. Meets at West Berkeley Public Library, 1125 University Ave., Berkeley, CA, third Tuesday of each month at 7:30 pm. Contact Shep Tamler, 5901 Broadway .#7, Oakland, CA 94618. (415) 653-5849.

Bay Area MacForum New and experienced Macintosh users. 2 monthly meetings: one immediately following San Francisco Apple Core meeting at Fort Mason, Building C, Room 300, San Francisco, 3rd Saturday of the month; one at Software Center, The Willows Shopping Center in Concord, second Monday of the month, 7 pm - 9 pm. For info: 1515 Sloat Blvd. # 2, San Francisco, CA 94132, (415) 566-2342

Barkeley Macintosh Users Group meets every Thursday evening at 5:30 pm on the UC Berkeley campus, in Physical Sciences Lecture Hall (near East Gate). Speakers, discussions, questions and answers. Developer SIG meets every other Wednesday at 5:30 pm on UCB campus in Dwinelle Hall lobby. For more info contact Reese Jones, Director, 1442A Walnut St., Suite #153, Berkeley, CA 94709 or call (415) 849-9114.

Stanford Macintosh User Group. P.O. Box 6508, Stanford, CA 94305. (415) 854-2118.

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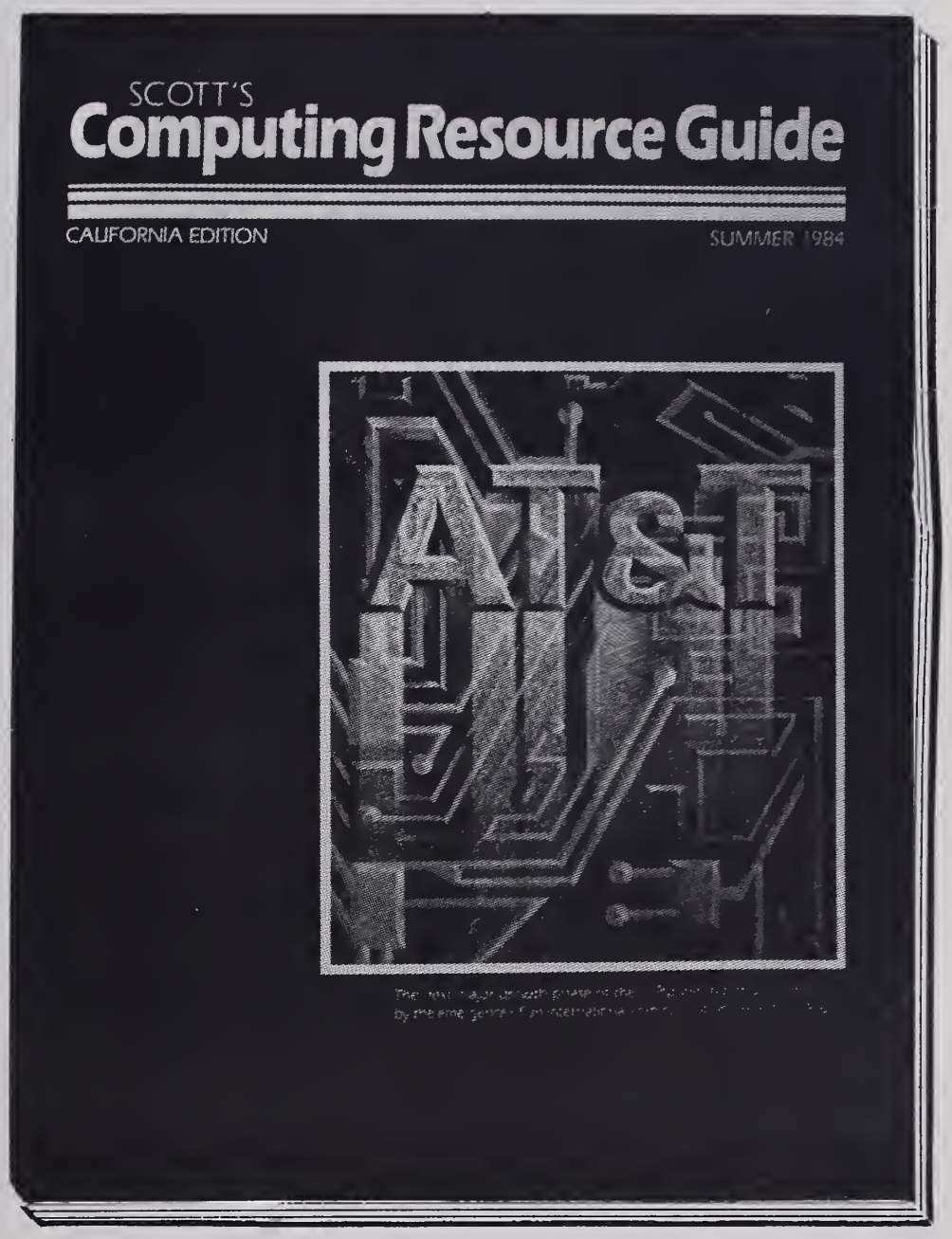

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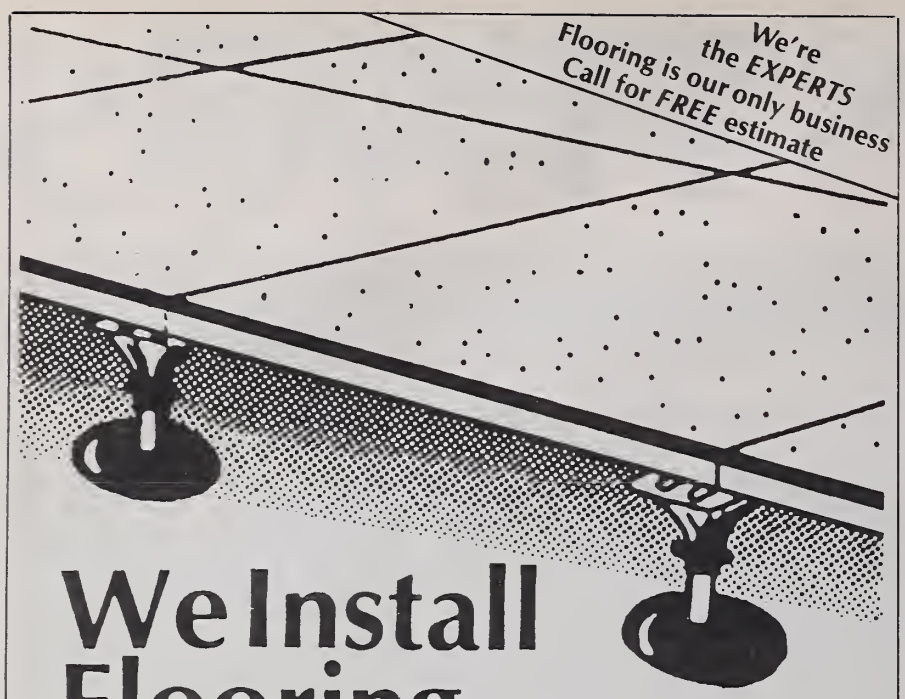

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USER GROUP NETWORK

MACINTOSH

MacNexus. Sacramento's Macintosh User Group. 150 members, but still informal. Extensive public domain collection. Contact Gail McGovern, P.O. Box 60908, Sacramento, CA 95860, (916) 446-2411. Meetings 3rd Thursdays, 6:30 pm, Almond Plaza, 17th & C, Sacramento.

MacProgram Unlimited. Meets monthly. Informal with hands-on testing of different programs. Public domain and standard programs in rental library. Meets Albany YWCA, Kains and Solano, Saturday 9:30 am. Contact William Gong, P.O. Box 7704, Berkeley, CA 94707. (415) 527-1756.

MORROW

BAMDUA (Bay Area Micro Decision Users Association). Meets on last Tuesday of the month, 7:30 pm. Call (415) 644-2805 for location. Monthly newsletter.

MINDSET

First Mindset Users Group Monthly meetings and newsletters cover advanced topics in computer graphics, animation, and video production using the Mindset Personal Computer and accessories. Meetings at various Bay Area locations, 3rd Monday of the month, 7 p.m. Contact Tim Negris, 138 Village Ct. #6, Walnut Creek, CA 94596, or call (415) 934-1448.

NORTHSTAR

INSUA Largest North Star users group in the world. Members' newsletter and software library. Membership dues $20. Contact George Riddle, P.O. Box 2910, Fairfield, CA 94533.

OSBORNE

East Bay FOG (First Osborne Group) Osborne, Kaypro and Morrow. Meets second Wednesday of the month at B&B Electric, 2832 Ford Street, Oakland. 6 pm workshops, 7:30 pm program. For info contact 5497 Taft Ave., Oakland, CA 94518; phone (415) 272-9099.

SMOG3 Osborne User Group (Peninsula) Meets first and second Monday of every month at Crane Place, 1331 Crane, Menlo Park. Call Phil Moore at (415) 325-2442.

MTDOG (Mt. Diablo Chapter—First Osborne Group) Meetings 7 pm, 3rd Wednesday each month in Diablo Room (top floor), SF Federal Savings and Loan, 1660 Olympic Blvd. (cross-street: California), Walnut Creek. Software library, software/hardware/service demonstrations, sharing problems and solutions. For meeting info contact Sylvia Tobias, (415) 376-4720.

PICONET

Piconet CP/M Users Group. Meets second Thursday at 7 pm at the Stanford Linear Accelerator Auditorium, Palo Alto. The password at the gate is "Piconet Meeting."

PIED PIPER

Pied Piper Users Group Owners of Pied Piper CP/M based computer are invited to call or attend the PPUG. Meets last Tuesday of the month at 7:30 pm. Please call (415) 638-1146. Meeting address: 10950 Elvessa St., Oakland 94605.

R2E

North Bay R2E Forming user group for R2E System microcomputer users. Please call (415) 235-1598 for information.

RADIO SHACK/TRS

Byte Bandits of America TRS-80's workshop computers club — bimonthly meetings — 2nd Saturday and 4th Wednesday of the month. Bring your computers. Free membership. Modem (408) 374-3974. Meetings at 780 Many Ave., Campbell, CA. For info contact R.W. Brown, (408) 379-2774.

TRS-80 Computer Society of Diablo Valley The purpose of this group is the sharing of information, problem solving, support group, purchasing discounts, support for professional, business and educational users of Radio Shack computers. Out-of-area members welcome. Meetings second Tuesdays of the month, Willow Creek Center, 1026 Mohr Lane, Concord, 7:30-9:30 pm. Doors open at 7. Contact Roy or Sue Copeland, P.O. Box 23438, Pleasant Hill, CA 94523, (415) 372-7003.

MCTUG (Marin County TRS-80 Users Group). Meets once a month on the second Monday. Meetings start promptly at 7:30 pm in the Larkspur Masonic Lodge, 1122 Magnolia Avenue, Larkspur. For information contact Frank Hovell (707) 762-5740 or Lois Johnstad (415) 453-5412.

TRS Nybbiers. Since 1979. New MS-DOS SIG, 3rd Fri. ea. mo., Room 1500; CP/M SIG 1st Fri. ea. mo. BBS (415) 582-8442—24 hrs. DSDD disks, boxed, $14.00. Meetings at Chabot College, Hayward, 2nd Friday, 8 pm. Contact B.B. Jarvis, 1975 Paseo Del Cajon, Pleasanton, CA 94566. (415) 582-8442.

SAMNA Word

SAMNA Word III San Francisco or East Bay telephone network forming to discuss glitches, ideas, and interface hassles. Contact Shanti Pederson, (415) 982-8898.

SANYO

Sanyo 1100/1200 User Group of the San Francisco Bay Area. P.O. Box 297, San Mateo, 8-10 pm, every 2nd Friday of month. Send large self-addressed stamped envelope for copy of newsletter.

Sanyo MBC 1100-1150 user group now forming in Oakland. Call or write (415) 534-1981, 5885 Bancroft Ave., Oakland 94605 for meeting time and location.

Sanyo User Group of the San Francisco Bay Area meets 2nd Friday of the month at Sears Savings Bank, 1820 S. Grant, San Mateo, 8 - 10 pm. Devoted to Sanyo 8-bit CP/M machines: MBC 1000, 1100, 1200 series. For info write 1260 Westwood St., Redwood City, CA 94061.

Sanyo National Users Group. SNUG is a central resource for Sanyo information and public domain. Inquiries welcome! Contact Ken Taylor, 4008 Pasadena Dr., San Mateo, CA 94403. (415) 345-7781.

Santa Clara Sanyo Users Group. SCSUG's 24 hour BBS (415) 659-9169. Support for MBC-55X Systems. Meetings at 1 West Campbell Ave. #80, Campbell, 7-10 pm every 3rd Wednesday of the month. Contact Jim Thomas, (415) 651-0201 for info.

TEXAS INSTRUMENTS

San Francisco 99ers One General Meeting per month plus uncountable mini-meetings for training. Over 500 programs available in library. Meetings second Tuesday of the month, 6:30 pm. Texas Instruments Learning Center, SF. Contact Dick Altman, 1053 Shrader St., San Francisco. (415) 661-1994.

TEXAS INSTRUMENTS

South Bay T.I. User Group. One general meeting per month. We have training session, library and own bulletin board (408) 578-6264. Meets first Thursday of each month at 7:00 pm, 1368 N. 4th St., San Jose. Contact Fred Roettger, v.p., for info: (408) 253-3510.

Nor-Cal TI 99/4A Users Group. Learn more about your Texas Instruments 99/4A computer. Free software, sources ofr hardware and software. Contact Dave Strady, 324 Howard St., Petaluma 94952, (707) 762-6561. Meetings at Retail Clerks' Union Hall, 382 Tesconi Ct., Santa Rosa, CA, first Wednesday of the month at 7 pm.

TIMEX/SINCLAIR

East Bay Timex/Sinclair User Group (EBZUG) Timex/Sinclair user group. S/W library and newsletter. Meets at West Branch of Berkeley Public Library at corner of University and San Pablo. Meets 3rd Tuesday of the month at 7:30 pm. Contact Rick Link. 654 40th St., Richmond, CA 94805. (415) 234-3310.

Peninsula Timex/Sinclair User Group (PUG) Timex/Sinclair user group. S/W library and newsletter. Meets at Peninsula Hospital, 1783 El Camino, Burlingame. Meets 3rd Sunday of the month at 1 pm. Contact George Mockridge, 263 Gateway #107, Pacifica, CA 94044. (415) 359-3198.

Silicon Valley Timex/Sinclair User Group (SVTSUG) Timex/Sinclair user group. S/W library and newsletter. Meets at Dysan Corp., 5201 Patrick Henry Drive, Santa Clara. Meets last Tuesday of the month at 7 pm. Contact Rita Carr, P.O. Box 4133, Santa Clara, CA 94044-0133. (408) 738-2888 ext. 45.

UNIX

The Unix C-Club Seminars, public domain softwares, information exchange, Unix hardwares and softwares. Discount on purchases. Meets 2nd Saturday of each month at 10 am. Call Gilbert B. Dalit at (415) 348-6723 or (408) 238-5587 for more information, or write: 122 2nd Ave., Suite 214, San Mateo, CA 94401.

VECTOR

Bay Area Vector Group Meeting held regularly. Please call to be put on mailing list. You will be informed of next meeting! Contact Peter Tjeerdsma, 764 Cole St. #4, San Francisco, CA 94117. Phone (415) 681-0308.

VICTOR

Victor* Group is the San Francisco Bay Area Victor User's Group. We have three chapters — East Bay, South Bay, and San Francisco. Members can attend meetings at any of the chapters or all of them. The more the merrier. Dues are $30 a year, which includes a subscription to VictorTalk, membership in a Victor-exclusive discount buying cooperative, and the right to buy from our public domain library at a discount. South Bay meetings are held the first Thursday of each month at Computer Insights, 40957 Grimmer Blvd., Fremont at 7:30 pm. Contact John Kimber (415) 797-6423. East Bay meetings are held the second Wednesday of the month at 7:30 pm; contact Boardman Moore (415) 283-3285 for location and further info. San Francisco meetings are held the third Sunday of the month at 5 pm at Homestead Savings, 130 West Portal, San Francisco. Contact Joe Zmuda, (415) 584-4048.

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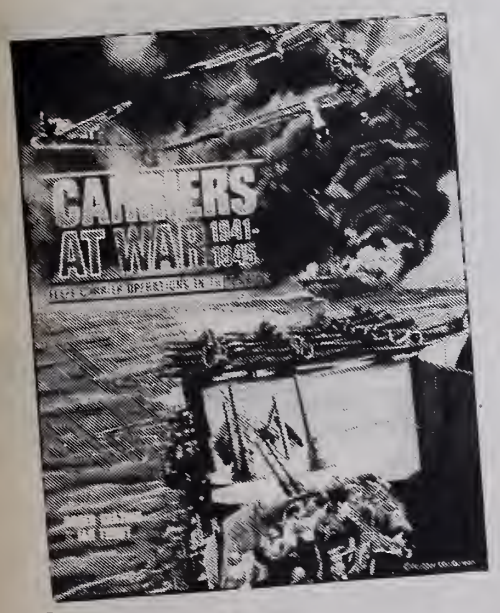

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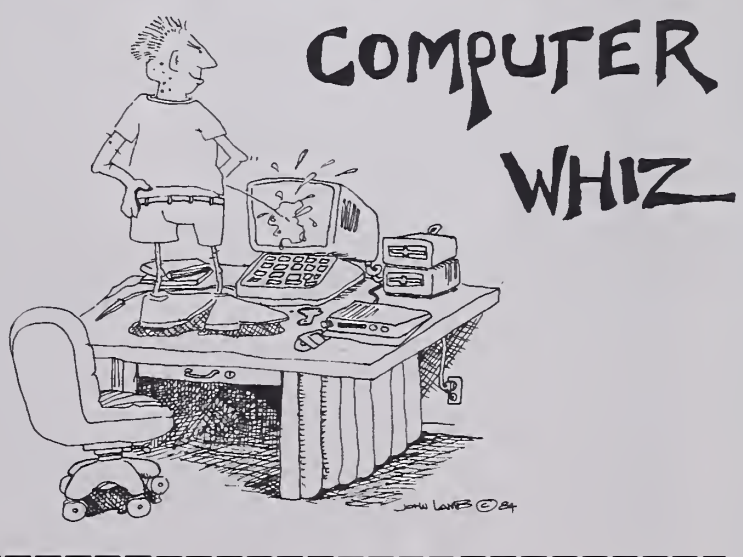

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Product Announcements

By Michael Wiesenberg

For The Rest Of Us?

Lisa Computers have (has?) finally released their long awaited 256-bit **Apple III Portable Computer.** Lisa spokesman Franklin Ace announced to the press that the new machine skipped 16, 32, 64, and 128 bits (all other intermediate bit configurations have been patented by DEC) to try to get a jump on the competition. Marketing manager Mac MackIntosh remarked, "The III was never a big secret to those who knew where to look. Our 1952 Corporate Report had a picture of it in a microdot over the first *i* of 'Lisa Deuxième' on page 7932."

The Apple III has 83 built-in 0.3-inch LED disk drives, expandable with an optional expansion option to 84, 64 googol-bytes of main memory, contractable with optional contraction board to 64 giggles, 232 RS-232 ports, 800 Y-triple-A ports, a built-in 22-foot (diagonal) 3D screen (using saddle-screen technology) with 0.00001 ns refresh rate, 12 joysticks, one joyspot, built-in modem with autodial, autoanswer, autoharp, and autohangup, menu-driven laboratory rat with detachable tail to point to pictures on the display of desired operations and operating desires, and 913-key keyboard plus numeric pad and 65536 programmable function keys. For the special introductory price of $2 (Californians, add 13¢ sales tax) plus $2000 p. and h., you get all the hardware, VisiClack, OmniClone, CP/M-257™, tm™, 1000 arcade games (including 900 different versions of *Flight Simulator*), UNIX, ONYX, VENIX, XENIX, PHOENIX, QUNIX, CROMIX, HP-UX, PC-DOS, RET-A, JCL, an asynchronous terminal emulator, RPG, FORTRAN 66, 77, and 88, ANTSY COBOL, FORTH, PILOT, C, D, E, BEB, APL, PL/I, PL/M, SNOBOL, LITHP, ADA, LOGO, CBASIC, ZBASIC, Integer BASIC, LisaSoft, SoftLisa, Pascal, Mesa, Modula-2, WirthLes, and SmallTalk, and a complete one-page manual explaining how to use everything. Aimed at the high end of the low-end middle-business vertical/horizontal market, the Apple III uses low technology (it has less than one integrated circuit, as opposed to the 31 of the 'Lisa Deuxième' and the 110 of its predecessor, the Lisa][Minus) to attract the broad spectrum of users, from cheap hobbyists to cheap businessmen. **Reader Service No. $10^{10^{10}}$.**

Get GUMMed

The **Gurus of UNIX Meeting of Minds** (GUMM) takes place Wednesday, April 1, 2076 (check that in your perpetual calendar program), 14 feet above the ground directly in front of the Milpitas Gumps. Members will grep each other by the hand (after intro), smoke filtered chroots in pipes, chown with forks, use the wc (unless uuclean), fseek nice zombie processes, strip, and sleep, but not, we hope, od. Three days will be devoted to discussion of the ramifications of whodo. Two seconds have been allotted for a complete rundown of all the user-friendly features of UNIX. Seminars include "Everything You Know Is Wrong," led by Tom Kempson, "Batman or Cat:MAN?" led by Richie Dennis, "cc C? Si! Si!" led by Kerwin Bernighan, and "Document UNIX? Are You Kidding?" led by Jan Yeats. No Reader Service No. is necessary because all GUGUs (Gurus of UNIX Group of Users) know everything, including what every other member is thinking and all information about where the meeting takes place.

Isn't That the Stuff Carol Doda Used?

Silicon! by Irwin Irving, published by Plastic Fantastic Press of Berkeley, is a potboiler about sex, sin, sybaritism, synthetic sadomasochism, sensuality, and waveform soldering in the sexy, sinful, sybaritic, sensual firms of Silicon Valley, by the author of *Formfeed!*, *Cars!*, *Tires*, and *Dr. Dobb: The Legend Relived*. Hardbound, $2; paperback, $19.95; disk, $29.95 (includes one-year update service, unless you're already dated up). Add $1.75 for right justification and another $2 for proportional spacing. (Disk not available in California due to air quality restrictions.) **Reader Service No. +1.**

Nuke 'Em Pewter

Pewter 'Puter from COMPuters is a quintuple-processor (Z8, 6502, Z80C, 8089, HP9000) multitasking, multipartitioned, multiuser, multifarious bubble-memory-oriented hard-disk-based applications workstation with bank-selected user-prioritized read/write inaccessible on/off-line internal/external memories configurable from 237K to 3.14159650Gb, one byte of ROM (1 bit for raster-scan display refresh), 137 input/output ports (10 each of RS-232A, B, and C, 13.5 IEEE, each ranging from 1 to 38,4000 bpns, and the rest random access with bisync/async communications protocol and gloveless handshaking), incorporated 12-foot (diagonal measure) amber on sapphire display (with optional RGB or digital bit-mapped color holographic adapters), built-in autodial/autoanswer last-number-dialed-but-one modem, speech and music synthesizer with 88-octave 100,000 dB range (1000 RMS watters per channel, four channels drive, with 0.08% total harmonic distortion), semidetachable ergonomic plateau-contoured keyboard, autoboot ROMs with integrated self-test circuitry, 24 integrated in/on-line soggy-disk-drives, 23.7 Winchester-Cathedral drives, 12 driveways, 18 virtual drives, 19 semivirtual drives, 13 simulated drives, and 12 simulated virtual drives, each with logic-seeking heads and head-seeking logic, integrated color-coordinated pewter dust cover (thus their name), built-in 12,000-page-per-minute, 1200-column laser printer, applications installed in ROMs or user-programmable EPROMs, 3.5-by-1.3-inch wire-wrap area for breadboarding, S-100 expansion, local-area networking, integrated 97-pen plotter with micro-grip drive system and rotating "grit wheels" to force grit particles to penetrate the drawing medium at thousands of points causing microscopic indentations indetectable to the naked eye, fail-safe power surge protection circuitry, PROM programmer, hardwired hex file downloader, internal connectors for any other computer system or electric appliance (except IBM products), open-ended warranty, no software included or presently available, 13 self-destruct circuits (including one that the designers cannot find and cannot safely dismantle the equipment to look for), streamlined styling for ease of trajectory plotting, and 13 nuclear warheads, each capable of destroying the known universe. For only $18,000,000,000,000 (plus $2.50 p. and h.; Californians add $108,000,000,000 tax) you can swing the balance of power in your favor! (Manual only, 77¢.) **Reader Service No. 3.141592650.**

Hot Item

Your Apple run too hot? MT System Zinc announces the **UH1**, their Universal Heatsink 1. Not only does this dandy little item fit any power supply, it also doubles as a hand warmer and energy sink. $1.99 postpaid, while they last, $2.99 for the deluxe UH2, and $3.99 for the super deluxe UH3. Ready? *UH1*, *UH2*, *UH3*. **Reader Service No. 2001.**

Oh, Foo!

The expressions FOOBAR and SNAFU originated with the military in World War II. The latter means, "Situation Normal, All F***ed Up," and the former, "F***ed Up Beyond All Repair." Somehow programmers added FOOBAR to their parlance, and always use FOO for any unspecified variable name, and BAR if they need another name. Technical writers who do not like the undignified sounds of these terms have banded together in TSOTSTDUBPIMOTTF, **The Society of Those Sworn to Destroy Use by Programmers in Manuals of the Term FOO.** TSOTSTDUBPIMOTTF meets yearly in the Technical Publications Auditorium at Hewlett-Packard's Data Systems Division.

IBM Recalls Everything (Except IBM)

IBM (Incredibly Big Manufacturer) has announced, through its wholly-owned subsidiary, the United States Government, a recall of all privately held personal computers, citing a defective connector that could disintegrate during normal operation, releasing deadly dimethyltriptamine gas. (Extra bonuses will be paid those turning in IBM PC plug-compatible look-alikes.) Recalled computers will be replaced at no cost with IBM PCs that have been modified to accept only IBM software. (All so-called compatible software will self-destruct in these special machines.) In other news, IBM is rumored to be planning a midyear fourfold increase in the prices of all PC software. **Reader Service No. 0.**

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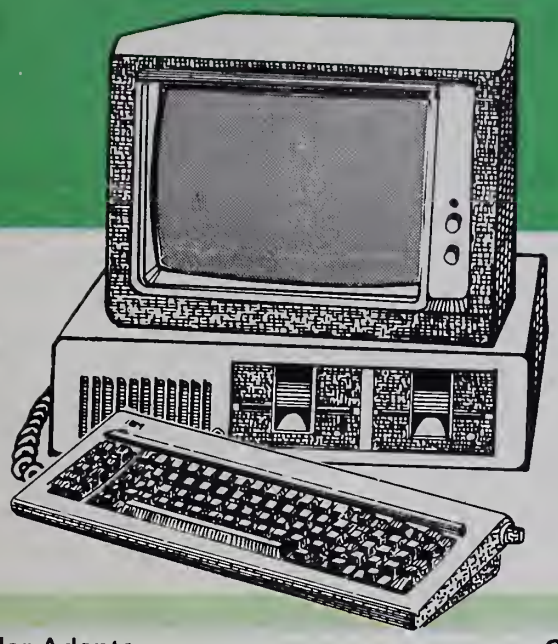

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